ENVIRONMENTAL ASSESSMENT

for
Proposed Maintenance Dredging
at
Fire Island Pines

Town of Brookhaven, County of Suffolk, New York

Prepared on Behalf of:

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B. Letter dated December 11, 2001 from the Town of Brookhaven to the Suffolk County Department of Public Works (1 page).

C. Memorandum from the Suffolk County Department of Public Works, Laboratory Division, to the SCDPW, Waterways Division (1 page).

D. Letter dated May 31, 2002 from the U.S. Army Corps of Engineers to the Suffolk County Department of Public Works (6 pages, including 4 pages of project plans).

E. Letter dated March 27, 2002 from the New York State Department of State to the Suffolk County Department of Public Works (3 pages, including 2 pages of completed Coastal Consistency Assessment Form).

F. Letter dated October 16, 2002 from Tony's Barge Service, Inc. to the Suffolk County Department of Public Works (1 page).

G. Aerial photography of project area, including closeup view showing Pines Harbor and subject channel (scale 1" = 200'), and wider view showing easterly limit of Fire Island Pines community adjoining federal wilderness area (scale 1" = 300').

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1. INTRODUCTION

This document is an Environmental Assessment (EA) which has been prepared on behalf of the Suffolk County Department of Public Works (SCDPW) with respect to the SCDPW's proposal to undertake maintenance dredging of the existing public navigation channel at Fire Island Pines which connects between the sheltered waters of Pines Harbor and the open waters of Great South Bay (see the Project Plan and Key Map in the Appendix of this EA). This EA has been developed at the direction of the National Park Service (NPS), and is required under the provisions of the National Environmental Policy Act (NEPA) in order to allow the NPS to evaluate the environmental consequences of issuing the requisite special permit to allow the proposed action to be undertaken within the boundaries of Fire Island National Seashore (FINS).

1.1 Project Setting

The proposed action involves the maintenance dredging of the existing public navigation channel at Fire Island Pines. Fire Island Pines is an unincorporated community on Fire Island in the Town of Brookhaven, Suffolk County, New York. This community covers approximately one-quarter square mile, extending about 6,000 feet from west-to-east between two tracts of undeveloped land. The north-to-south width of Fire Island Pines varies between 900 feet and 1,700 feet.

Fire Island is a 32-mile long barrier island which separates Great South Bay from the Atlantic Ocean, on the south shore of Long Island. The subject project site is located within the 26-mile long stretch of Fire Island, extending between Robert Moses State Park to the west and Moriches Inlet to the east, which was designated by Congress in 1964 as Fire Island National Seashore. FINS is a national park encompassing approximately 20,000 acres (about 30.5 square miles), including open-water areas extending up to 1,000 feet into the ocean and up to 1-½ miles into the bay.

Roughly one-third of the area within FINS is owned by the federal government. Most of remaining two-thirds of the park that is not federally-owned consist of lands that are owned by other government entities (New York State, Suffolk County, Towns of Islip and Brookhaven, and villages), including large tracts of underwater lands. Fire Island Pines is one of 17 distinct communities situated within FINS. These communities predate the establishment of FINS, and consist mostly of small, individual, privately-owned properties which cumulatively comprise a significant portion of the upland area within the park.

1.2 Statement of Purpose and Need for the Proposed Action

The proposed action is being undertaken by the SCDPW to ensure navigational safety and to restore the subject channel to its authorized dimensions, thereby guaranteeing that the channel continues to provide an unobstructed route between the shoreside docking facilities at Fire Island Pines and the open waters of Great South Bay.

In December 2001, the SCDPW received a letter from the Town of Brookhaven (a copy of which is included in the Appendix of this EA) requesting that the Fire Island Pines navigation channel be included in the SCDPW's upcoming schedule of maintenance dredging activities. This request was prompted by anecdotal reports of shoaling in the channel, especially at the mouth of the inlet connecting Pines Harbor to the bay, as observed by vessel operators. Based upon this request, Fire Island Pines was added to the list of projects being considered by the SCDPW for maintenance dredging.

Acting on the maintenance dredging request, the SCDPW undertook a bathymetric survey in January 2002 to verify channel conditions. This survey showed a large shoal extending from west to east into the mouth of the inlet (at stations 2+00 to 3+00, as shown on the Project Plan included in the Appendix of this EA), with several smaller areas of shoaling in the interior portions of the channel (including stations 0+30 and 1+00). Additionally, the bottom of the entire channel has accumulated sediment, such that the eight-foot authorized project depth does not exist in the interior 500-foot length of the channel, and seven feet of depth occurs only as a narrow band (generally 20 to 30 feet in width) along the center of the channel in this area. Although the outer 300-foot length of the channel is somewhat deeper, even this reach currently does not attain a depth of eight feet along the edges of the channel. Based on these data, it is clear that the subject channel is significantly narrower and shallower than its authorized dimensions, especially in the southerly reach. At least one incident of a boat hitting bottom has been reported (see below), and the current conditions give rise to significant concerns that continued shoaling will increase the probability of additional vessel incidents as time goes by unless maintenance dredging is performed. Most recently, the owners of Tony's Barge Service, Inc., which handles waste removal and related haulage to and from the Pines, submitted a letter indicating that use of the harbor is seriously impeded by the worsening shoaling (copy in the Appendix).

The subject channel serves as the sole means of access to Fire Island Pines, except for limited access that is available by permit for four-wheel drive vehicles along the ocean-side beach. The channel terminates at its southern end in Pines Harbor, a man-made boat basin which was excavated into previously solid land in the early 1950s. Pines Harbor provides dockage for deep-draft passenger ferries, freight vessels, solid waste barges, and other commercial boats, as well as approximately 80 seasonal and transient slips for recreational vessels. The basin area is owned and maintained by the Fire Island Pines Property Owners Association.

Fire Island Pines is a diverse community. The primary use is residential, consisting of approximately 620 single-family homes and 100 cooperative apartments. This residential base supports and is supported by a thriving on-site commercial sector, with more than 100 business entities, including numerous contractors (plumbing, carpentry, roofing, general construction, landscaping, pool maintenance, equipment repair, etc.), restaurants, clubs, discos, drinking establishments, lodging facilities, utility services, retail stores, personal service shops, real estate offices, solid waste management businesses, and the like (Allan Brockman, President of Fire Island Pines Property Owners Association, telephone communications, August 8 and 20, 2002). These businesses serve not only the needs of the residents of Fire Island Pines, but also provide quality services and goods to a large number of people who come in from neighboring communities, as well as visitors from the outside.

Fire Island Pines and the other Fire Island communities also support numerous businesses on the Long Island mainland. These include taxi transport between the railroad station and the ferry terminal, parking facilities, restaurants and other services in the vicinity of the ferry terminal, and various commercial facilities dealing in furnishings that are purchased on the mainland and shipped to Fire Island (e.g., appliances, furniture, building materials, etc.).

As noted above, access to the community's residences relies almost exclusively on ferry service. It is estimated that Sayville Ferry Service, which has an exclusive contract to serve Fire Island Pines, handles approximately 100,000 passenger round trips per year (Kenny Stein, Sayville Ferry Service, telephone communication, August 12, 2002). The ferry operates year-round, with multiple daily runs during the "summer season", and a more limited winter schedule. The businesses in the community are dependent upon the people brought over on the ferry, both residents and visitors, for their customer base, and receive essentially all of their shipments of commodities via a separate freight vessel operated by Sayville Ferry Service. Delivery of construction materials and vehicles, and removal of solid wastes are accomplished by large commercial vessels operated by companies other than Sayville Ferry Service.

Adequate navigability of the subject channel is critical to ensuring the availability and safety of this vital transportation link, upon which the community depends so heavily. Information provided by Sayville Ferry Service indicates that adequate depth for its ferries and freight vessels (which have a draft ranging from approximately 4-$^1/_2$ to 6 feet) currently is available along the central axis of the channel. However, significant shoaling has occurred on the margins of the channel. In fact the Ferry Service has experienced at least one recent incident where one of its ferries struck the bottom when the pilot steered away from the center of the channel in order to allow room for another boat to pass (Kenny Stein, telephone communication, August 12, 2002). The self-propelled barge operated by Tony's Barge Service (with a draft of approximately 6-$^1/_2$

feet, used for solid waste removal and heavy freight deliveries) has encountered even greater difficulty in navigating the channel, getting stuck several times during the early spring of 2002 and rubbing the bottom on a regular basis during more recent runs. This barge makes an average of four weekly trips into and out of Fire Island Pines (Tom Esposito, telephone communication, August 22, 2002).

Continued shoaling of the subject channel in the absence of maintenance dredging will make navigation progressively more difficult and eventually could lead to more serious problems than those which have been recently experienced. By proposing that the project proceed at this time, the SCDPW is seeking to avoid interruption of safe and efficient travel to and from Fire Island Pines.

Suffolk County has established public benefit criteria for evaluating prospective maintenance dredging projects. County funds can only be expended for those projects which serve the public benefit, as determined by the County's Dredge Project Screening Committee. The Fire Island Pines navigation channel has been accepted by the Committee — by virtue of this channel's critical function as the principal access route to and from the community, and its use by various commercial vessels and availability to the general boating public — and is included in the County's maintenance dredging program.

1.3 Objectives of the Proposed Action

The primary objectives of the proposed action are identified as follows:

A. to restore the Fire Island Pines channel to its authorized dimensions, by means of maintenance dredging;

B. to provide for safe and unobstructed navigation through the subject channel for a reasonable length of time following project completion;

C. to undertake this project in a manner that minimizes environmental impacts; and

D. to utilize the material dredged from the subject channel for beneficial reuse to the extent practical.

1.4 Scope of this Environmental Analysis

1.4.1 History of Project Planning and Scoping

This EA provides an assessment of the anticipated environmental impacts of the proposal by the SCDPW to perform maintenance dredging of Suffolk County's navigation channel at Fire Island Pines. This includes the round of dredging that is currently proposed, as well as any follow-up dredging that may be needed to accomplish project objectives, as outlined in section 1.3, over the course of the next ten years.

The scope and content of this document were discussed and outlined during a scoping meeting which was held in conformance with the requirements of NEPA on July 16, 2002 at the NPS/FINS facility located at 120 Laurel Street in Patchogue, New York. In attendance at the scoping meeting were representatives from the NPS, SCDPW, and Cashin Associates, P.C., an engineering and environmental consulting firm which was retained by the County to prepare the EA. The scope was amended during a series of follow-up meetings between the NPS and the SCDPW after a draft EA was submitted for NPS review in August 2002.

The information presented in this EA was obtained from various sources, including existing reports and other documents, field investigations by the SCDPW to define bathymetry and bottom sediment characteristics in the subject channel, interviews with officials from the involved agencies and knowledgeable individuals in the community, and a site inspection by Cashin Associates conducted on August 16, 2002. The Appendix of this EA contains photographs taken during that site visit.

At the scoping meeting, the NPS requested that this EA also investigate the navigability status of the Fire Island Pines ferry basin (i.e., Pines Harbor), which is situated just beyond the southerly end of the project limits of the County-maintained navigation channel at this location. Maintenance of the basin is not within the purview of the SCDPW, but rather is undertaken privately by the Fire Island Pines Property Owners Association. According to the FIPPOA (Alan Brockman, President, telephone communication, July 23, 2002), there currently are no active plans for dredging Pines Harbor and it is not anticipated that any such dredging will be needed for at least the next several years. Lacking information regarding the location(s) at which future dredging may be needed within Pines Harbor, the anticipated timing of such dredging, and relevant sediment characteristics and feasible disposal options, the present EA does not contain further discussion or analysis of the environmental implications of any future dredging that may occur within Pines Harbor.

Additional meetings were held between the SCDPW, FINS, New York State Department of Environmental Conservation and Cashin Associates in October, November and December to further define project objective and scope, as well as a site inspection of sand disposal areas on December 2, 2002.

1.4.2 Issues

The primary issues addressed in this EA were:

- dredging-related impacts to natural resources, especially with respect to listed species, finfish, benthic invertebrates, and water quality;

- sediment transport processes, including shore erosion, deposition, littoral drift, loss of tidal marshes in the bay, and erosion of upland areas due to the action of wind and vehicular traffic;

- beneficial reuse of suitable dredged material; and

- socio-economic considerations, especially with respect to the social and economic benefits derived from a functional Fire Island Pines community.

1.4.3 Relevant Planning Documents

It is important to recognize that the site of proposed action is located within a national park (i.e., Fire Island National Seashore). Therefore, in addition to complying with general environmental standards that have been promulgated at the federal, state and local levels, the proposed action also must conform to the current management policies of the National Park Service, which are set forth in the 2001 edition of the *NPS Management Policies*.

The scope and content of this EA also is consistent with the guidelines contained in the recently revised manual issued by the NPS under Director's Order #12 relative to *Conservation Planning, Environmental Impact Analysis, and Decision-making* (effective January 8, 2001) which establishes the policies and procedures by which the NPS carries out its responsibilities under NEPA.

2. DESCRIPTION OF ALTERNATIVES, INCLUDING THE PROPOSED ACTION

This section of the EA provides a description of a range of alternative actions under consideration. Section 4 presents an analysis of the environmental impacts associated with each alternative.

Alternatives that were subject to full environmental review in this EA, and which are described in detail in Sections 2.1 though 2.3, respectively, are:

- hydraulic dredging with upland disposal (preferred alternative);
- hydraulic dredging with ocean-side disposal;
- no action, as required under NEPA; and
- dredging with bay-side disposal.

Other alternatives that were eliminated from detailed analysis as being unfeasible are identified in Section 2.5.

2.1 Alternative #1 (Preferred Alternative)

The SCDPW is proposing to perform hydraulic maintenance dredging of the public navigation channel at Fire Island Pines. The existing channel has the following authorized dimensions, as shown on the Project Plan included in the Appendix of this EA:

Length = 700 feet

Width = 100 feet to the north of the westerly bulkhead (stations 0+00 to 4+00); and variable, ranging between 60 feet and 100 feet, inside the westerly bulkhead (stations 0+00 to -3+00)

Depth = 8 feet at mean low water (mlw)

The SCDPW proposes to restore the entire length of the subject channel to its authorized depth and width. This will entail the removal of a large shoal that extends into the mouth of the inlet as a result of the natural long-shore transport of sediment eastward around the end of the L-shaped westerly jetty (stations 2+00 to 3+00), in addition to scattered, smaller shoals in the interior portions of the channel (including stations 0+30 and 1+00), and a thinner sediment layer that has accumulated throughout the channel bottom. Eight feet of depth at mlw currently does not exist in the interior

500-foot length of the channel, and 7 feet of depth occurs only as a narrow band (generally 20 to 30 feet in width) along the central axis of the channel in this area. The outer 200-foot length of the channel, extending into the bay, attains somewhat greater depths, exceeding 12 feet in the middle at station 4+00. However, in general, even this outer reach currently does not attain the 8-foot project depth along the edges of the channel.

Based on the data collected during a January 2002 bathymetric survey, the SCDPW estimated at that time that approximately 4,845 cubic yards of material would have to be removed in order to restore the subject channel to its authorized dimensions. Given that the proposed project will not be implemented before the fall 2002 through spring 2003 dredging window, it is likely that a somewhat greater volume of dredged material ultimately will be removed from the channel due to additional accumulation of sediment during the interim. For the purposes of this assessment, it is estimated that 6,000 cubic yards of material will have to be dredged and disposed.

A seven-foot channel with a one-foot over-cut allowance is proposed. This is standard practice for maintenance dredging, which compensates for uncertainties in the as-built channel depths resulting from variability in the precision of the dredging operation due to waves, tides, wind and other factors. The over-cut allowance will ensure that the authorized depth is achieved throughout the entire project area.

It is proposed that the material dredged from the subject channel be utilized for beneficial reuse in upland areas (i.e., above the high tide line) where additional sand fill can be accommodated. Under this alternative, sands from the channel initially will be hydraulically transported to a stretch of approximately 1,000 feet of ocean shoreline directly opposite the dredging site across the barrier island (as illustrated in the Project Plan in the Appendix of this EA). All material will be deposited between the mean high water line and the toe of the primary dune via hydraulic pipeline. This pipeline will traverse the island via existing walkways. The Fire Island Pines navigational channel was last dredged in 1993, when approximately 6,500 cubic yards of material were removed. That material was placed at approximately the same location as is presently being proposed.

After the sands undergo dewatering (estimated to require several days because of the sandy, well-drained nature of the sediments and receiving beach area), approximately 2,000 cubic yards of this material will be relocated to fill areas at the interior of the barrier beach to the west of Fire Island Pines. The sand will be transported by 25-cubic yard trucks to the disposal areas, and graded with a 4-cubic yard front-end loader by Suffolk County. The sands will be placed on vehicular pathways, referred to as the east beach cut. The disposal areas consist of low areas in the sand pathways, including many areas where previous wind erosion has lowered the grade of the pathways

significantly below adjacent areas. These ultimate disposal areas are shown in the Disposal Plan included in the Appendix.

Some of the sands deposited in the east cut eventually will be relocated by NPS to a sloped area to the north of the LIPA electrical substation for the purpose of restoring a vehicular pathway from Fire Island Pines to the Talisman/Barrett Beach area. The new pathway will extend from the existing pathway at the substation, be continued along the north side of the substation, and then extend north to link up with the existing west-to-east pathway to Talisman/Barrett Beach, as shown in the Disposal Plan in the Appendix. Approximately 250 cubic yards of sand will be used to modify slopes along the proposed route immediately north of the substation.

As part of the preparation of this assessment, contact was made with KeySpan Energy, and a review of the Grant of Right-of-Way between the National Park Service and the Long Island Lighting Company (LILCO) dated October 16, 1995 was performed. The substation is now operated by KeySpan Energy, and was formerly operated by LILCO. KeySpan (formerly LILCO) has a right-of-way agreement with NPS for the substation and underground cable routes in the area. Preliminary contact with KeySpan's substation group (Robert Ganley and Robert Opitz) was made to discuss the placement of the connector road along the north side of the substation and down to the slope at the northeast corner of the site. KeySpan indicated that underground electrical cables are present beneath the pathway leading up the slope to the substation. KeySpan further stated that further analysis would be needed to determine that the cables would be secure with additional vehicular traffic over the area, and with the placement of additional sand fill over the buried cables. KeySpan said that the cables could require additional protection or reinforcement to accommodate traffic, depending on the findings of their investigation. KeySpan also stated that ongoing monitoring and maintenance might be required to ensure that the cables remain secure in the further if additional traffic is brought through the area.

Sands will be deposited at the east cut paths so as to maintain full-time vehicular access. Although there may be temporary blockages during dumping and regrading of sand, the County will maintain access to and from the Pines inland roadway (Pines Boulevard). At the west end of the depositional area, sands will be graded so as to create a gentle incline onto the filled areas of roadway from Pines Boulevard. The side roadway to the helicopter pad and LIPA substation will not be affected by this project, and will not receive sands or experience truck activity. Material to be used on the NPS connector pathway will be transported by NPS personnel using small equipment at a later time.

Although ocean-side beach nourishment has historically been the disposal option of choice for sediment dredged from the subject channel (see Alternative #2), upland disposal is viewed as more desirable by the NPS in this case. The sand will be used for

beneficial re-use for restoring grades in low-lying and eroded pathway areas. It will provide for the repositioning of bayside sediments closer to the bayside and not on the ocean-side.

Current theory regarding barrier beach migration indicates that sediment supplies on the bayside are critical to maintaining the integrity of the bayside shoreline. Disposal as proposed under Alternative #1 will also have beneficial effects of helping to restore the upland vehicular passageway from Fire Island Pines to Barrett Beach, which is an objective of the NPS as part of the overall improvement of the area. Upland disposal will avoid impacts to sub-tidal and inter-tidal zones along the bayside while helping to protect the substation from bayside erosion that has threatened the integrity of the shoreline to the immediate north of the station.

2.2 Alternative #2 (Dredging with Ocean-Side Disposal)

This alternative is essentially the same as Alternative #1, except that the dredged sands would not be relocated to upland areas after being deposited on the ocean beach.

Ocean-side beach nourishment historically has been the disposal option of-choice for sediment dredged from the subject channel, as well as from most other maintenance dredging projects involving material with appropriate physical characteristics (especially with respect to grain size compatibility) removed from waterways along the north side of Fire Island. This alternative, however, would not meet the NPS's objectives of keeping bayside sediments within the bay system, and would not provide re-use benefits associated with depositing sand in the eroded east cut area and vehicular link pathway to Barrett Beach.

2.3 Alternative #3 (No Action)

Under the No-Action alternative, the proposed maintenance dredging project would not be undertaken and ongoing shoaling of the Fire Island Pines navigation channel would be allowed to continue unabated. Eventually, the channel would fill in more-or-less completely to approximate the bathymetry in the surrounding area, which consists of a near-shore zone of shallow water gradually deepening in a northward direction toward the central axis of Great South Bay.

Without maintenance dredging, vessel access to Pines Harbor would be precluded over time, except possibly by small boats, as shoaling would continuously reduce water depths in the approach channel. With the water-side approach thus impaired under the No-Action alternative, the land-side would become the primary route of access. Given the number of residents involved, this would necessitate a substantial increase in the traffic volume of on-beach four-wheel drive vehicles. Such a shift to land-based transportation would be contrary to the NPS's management objective of limiting the

number of permits issued for beach driving in FINS and, therefore, is not considered to be feasible.

Based on the foregoing, it can reasonably be concluded that failure to undertake maintenance dredging at the subject location ultimately would eliminate the only practical means of general access available to the public and would, thereby, result in Fire Island Pines being unable to continue functioning as a viable community.

2.4 Alternative #4 (Dredging with Bay-Side Disposal)

As requested by the NPS during the scoping meeting, this EA addresses the option of bay-side disposal of the material proposed for dredging from the Fire Island Pines navigation channel. The impetus to assess this disposal option arises from concerns on the part of the NPS (and others) that the routine transfer of sandy sediment via dredging from bay-side navigational facilities to ocean-side beaches may be:

- acting counter to natural sedimentary processes, whereby material is transferred from south to north across Fire Island over the long-term via overwash and breaching; and

- contributing to certain chronic environmental impacts in Great South Bay, including the erosion of unarmored sections of the northerly shoreline of Fire Island and the loss of tidal marshlands.

Under this alternative, maintenance dredging of the subject channel would proceed as currently is proposed by the SCDPW. However, instead of being placed along the ocean shoreline, the dredged material would be retained for beneficial reuse at a suitable disposal location along the bay-side of Fire Island.

During the scoping meeting for this EA, a number of possible disposal sites were discussed to address significant ongoing bay-side erosion, including: the area immediately to the east of the jetty on the easterly side of the subject channel; the entire 4,000-foot stretch of bulkheaded shoreline to the east of the channel; and the federal wilderness area extending further to the east from the end of the aforementioned 4,000-foot section of bulkheaded shoreline. In all of these scenarios, however, it was noted that insufficient space exists to accommodate the dredged material above the mean high tide line, thereby requiring that this material be deposited within the intertidal zone and perhaps the subtidal zone.

The SCDPW has indicated that disposal to the immediate east of the channel would be an attractive option from a technical and financial perspective; the proximity of the channel and disposal site would allow the County to use a mechanical dredge, resulting in lower project costs as compared to the current proposal. Disposal along the

bulkhead further to the east would involve costs that are similar to the proposed action, but would be somewhat more difficult to implement with respect to the placement and manipulation of the discharge piping. Disposal along the unbulkheaded shoreline in the wilderness area would entail a significant increase in project costs, primarily because at least one booster pump would be needed to convey the dredged material more than 4,000 feet from the channel; in contrast, the proposed project will not require a booster pump, since the length of disposal piping will not exceed about 1,500 feet.

In order to obtain feedback regarding the current feasibility of bay-side disposal of the material that will be dredged under the proposed project, discussions were conducted with two of the key agencies involved in the regulatory review process for dredging activities, NYSDOS (Steven Resler, Division of Coastal Resources, telephone communication, July 23, 2002) and the Region 1 Office of NYSDEC (George Hammarth, Bureau of Marine Habitat Protection, telephone communication, July 31, 2002). For each action that requires ACOE approval, NYSDOS is responsible for issuing a certification that the action is consistent with the New York State Coastal Management Program. NYSDEC is responsible for issuing the requisite New York State water quality certification and tidal wetlands permit.

NYSDOS indicated that it supports the beneficial reuse of dredged material of suitable quality, including bay-side placement in an intertidal or subtidal location, under the proper site-specific circumstances. However, NYSDOS could find such a disposal option acceptable only if the applicant were able to demonstrate that sand normally accumulates in the proposed disposal location (i.e., natural beach areas), or that sand historically had accumulated but no longer does so because of human interference with natural littoral processes (such as may occur with shore-hardening structures). NYSDOS would not endorse the placement of dredged material on the seaward side of a bulkhead where no functional beach exists, as occurs along the 4,000-foot stretch of shoreline directly to the east of the Fire Island Pines channel. NYSDOS cautioned that the burden for demonstrating the appropriateness of bay-side, subtidal disposal would be squarely upon the applicant. Furthermore, a NYSDOS consistency certification would be possible only if fully supported by NYSDEC, since such certification requires that the project be consistent with New York State tidal wetland policy, a policy for which NYSDEC is the ultimate arbiter.

The Region 1 (Nassau-Suffolk) Office of NYSDEC historically has vigorously opposed the placement of sediments below the mean high water line under almost any circumstances. This policy position has been based upon the presumption that significant ecological impacts will ensue when marine habitats are disturbed by filling. Although NYSDEC has been involved in discussions regarding the chronic erosion occurring on the northern shore of Fire Island and progressive losses of tidal marshlands in Great South Bay, and the possible role that the removal of sediments from bay-side channels and disposal elsewhere may play in exacerbating these

problems, NYSDEC has not indicated that it would be amenable as a matter of general policy to shoreline restoration projects which involve the placement of material below the line of mean high water in the bay.

Beyond the critical regulatory issues outlined above, anecdotal information provided to the SCDPW indicates that a proposal for bay-side disposal at Fire Island Pines may meet with significant opposition from local residents. Presently, sufficient water depths occur along the bulkhead at many of the bayfront properties in the community to allow ready access by small boats. The placement of sediment in the nearshore zone in this area under Alternative #3 would eliminate the depth conditions that these residents currently enjoy, and would make small boat access more difficult.

Based on the foregoing information regarding the current policy positions of the involved regulatory agencies, as well as possible public opposition, it is apparent that amending the County's proposal for maintenance dredging at Fire Island Pines so as to utilize a bay-side disposal location, rather than the upland disposal alternative of the present application, would most likely entail a long and difficult regulatory review process. These circumstances almost certainly would cause a substantial delay in executing the project, which would compromise boater safety and access to Fire Island Pines as the channel continues to shoal in the interim. Furthermore, the discussions to date with NYSDOS and NYSDEC indicate that there is not even a reasonable guarantee that such a modification would eventually be approved. For these reasons, and given that the County is committed to undertaking the proposed project during the current fall-through-spring dredging window, the alternative of bay-side disposal at Fire Island Pines is not a viable option for the County at this time.

During the discussions with NYSDOS and NYSDEC regarding the feasibility of bay-side disposal, it became apparent that this issue extends beyond the narrow, local circumstances of the subject application for the maintenance dredging of approximately 6,000 cubic yards of sediment from Fire Island Pines navigation channel. The issues which are of concern to the NPS relative to the removal of sediment from the bay system, including the possibility that this practice is contributing to shoreline erosion and loss of tidal marshlands, are bay-wide in scope. These issues should be addressed on a broader scale which engages all of the involved parties to evaluate policies that are in-place for projects throughout Great South Bay, and possibly the entire South Shore Estuary. Depending on the progress that is achieved in such an endeavor, it may be possible that bay-side disposal could be considered as a feasible alternative the next time that the navigation channel at Fire Island Pines requires maintenance dredging.

During the most recent meeting with the NPS and SCDPW on November 27, 2002, NYSDEC reaffirmed its position that placement of dredged material below the high tide line in the area of the subject bay-side erosion to the immediate east of Fire Island

Pines is inconsistent with the State's tidal wetland protection regulations, and that an alternative involving upland disposal would be preferred in this particular case.

2.5 Alternatives Considered but Eliminated from Detailed Analysis

The alternative of dredging only the major shoals in the subject channel, while leaving intact those portions of that channel bottom that have sustained less severe infilling, was discussed during the scoping meeting. This alternative would reduce the area of bay bottom to be excavated during the current round of dredging, thereby providing an apparent environmental benefit in terms of reduced short-term impacts to benthic marine habitat as compared to the proposed dredging of the entire area of the channel that is shallower than the authorized depth. However, this distinction would be substantially diminished over the long-term, since a limited dredging project at this time likely would necessitate a decrease in the interval between dredging events in order to maintain navigability through the channel, which would subject the benthic habitat in the channel bottom to more frequent disturbance.

The limited dredging alternative also is untenable from the perspective of the scheduling and logistics of the SCDPW's overall dredging program. The SCDPW is responsible for maintaining well over one hundred channels throughout the County, but only a small fraction of these projects can be dredged in any given year due to constraints of the availability of funding, equipment and personnel, environmental windows, and other factors. If projects were required to undergo more frequent maintenance dredging in the future, as a consequence of limiting the extent of dredging that occurs at any given time, the County would expect to incur more serious problems in scheduling and completing the required workload in a timely manner.

3. AFFECTED ENVIRONMENT

This section of the EA reviews various components of the natural and human environment that may be affected by the potential actions under consideration. This discussion is based on existing information; no new studies were undertaken in connection with the preparation of this report. Limited field inspection was performed to confirm the physical and environmental conditions at the proposed upland sand disposal sites.

3.1 Listed Species

The proposed action will affect three discrete areas in FINS: the subtidal marine habitat within the channel proposed for maintenance dredging which connects Pines Harbor to the open waters of Great South Bay; the disposal dewatering area above the mean high tide line on the ocean-side beach of Fire Island Pines; and, the final upland disposal areas along the Fire Island Pines east cut. The dredged material transport pipeline will traverse Fire Island from the channel to the disposal area via existing walkways in the community, which avoids encroachment into habitat areas along the pipeline route.

3.1.1 Marine Species

No species that are listed as threatened or endangered by the federal government or New York State are known or suspected to occur within or in the vicinity of the subject channel. Other aquatic species of concern are discussed in Section 3.2, below.

Several species of sea turtles have been documented in the region, including green sea turtle (*Chelonia mydas*), loggerhead sea turtle (*Caretta caretta*), and Kemp's Ridley sea turtle (*Lepidochelys kempii*). NYSDEC (1999) reports that none of these species has been documented in Great South Bay. The NPS believes that some sea turtle sightings have occurred in the bay, usually in the vicinity of inlets. In any case, the probability of their presence in the subject channel is low.

The NPS reports that seals, although rare, have been observed in the bay.

3.1.2 Terrestrial Species

The proposed dewatering site comprises an approximately 1,000-foot stretch of sandy beach above the mean high tide line along the Atlantic shoreline of Fire Island Pines. The transport route for truck sand from the ocean disposal/dewatering site to the east cut also consists of open sandy beach between the high tide line and the dune zone. In general, this type of substrate serves as suitable nesting habitat for four federal and/or New York State-listed avian species:

- piping plover (*Charadrius melodus*) — federal threatened on Atlantic coast and State endangered
- roseate tern (*Sterna dougali*) — federal and State endangered
- least tern (*Sterna antillarum*) — State endangered (no federal listing)
- common tern (*Sterna hirundo*) — State threatened (no federal listing)

Although potentially containing substrate that is suitable as nesting habitat for the above-listed species, the proposed dredged material placement area is not currently

utilized by these birds due to the proximity of the site to the Fire Island Pines residential community. These species typically avoid areas where there is an intensive human presence, such as occurs at the subject location with respect to the various traditional recreational beach activities by residents and visitors to Fire Island Pines, especially during the period between the early spring and the fall when these migratory birds are present in the region.

The type of substrate at the proposed dredged material placement area also is suitable for one federally-listed threatened and globally imperiled plant, sea beach amaranth (*Amaranthus pumulus*), which typically grows on overwash flats and high beach areas between the fore dune and wrack line along the Atlantic Coast. The globally rare sea beach Knotweed (*Polygonum glaucum*) also can occur in these areas. However, no known recent occurrences of these species have been documented along the oceanfront of Fire Island Pines.

The upland disposal sites in the east cut vehicular roadways do not contain vegetation, but are adjacent to barrier beach dune vegetation and woodlands. Sand would be placed on vehicular pathways and not directly onto any vegetation.

The extension of the existing vehicular pathway at the east cut will involve clearing of a small area of vegetation along the north side of the LIPA substation. This vegetation does not consist of any mature barrier beach woodland, but instead consists of disturbed secondary growth including grasses and saplings (wild cherry, oak) that are periodically trimmed back to provide a buffer between the substation and adjacent woodlands. The affected area does not contain any large oak, holly or sassafras trees typical of the adjacent barrier beach woodlands. The amount of vegetation to be cleared consists of an approximately 40-foot by 12-foot area adjacent to the fence on the north side of the substation.

3.2 Other Aquatic Species of Concern

3.2.1 Finfish

Great South Bay provides feeding, breeding and/or nursery habitat for a large variety of finfish species. This includes the following species, arranged according to their normal spawning location (Bokuniewicz, et al., 1993; Grosslein and Azarovitz, 1982; U.S. Army Corps of Engineers, 1975; and Schreiber, 1973):

Fish that spawn in Great South Bay — winter flounder (*Pseudopleuronectes americanus*), weakfish (*Cynoscion regalis*), scup (*Stenotomus chrysops*), blackfish (or tautog, *Tautoga onitis*), cunner (*Tautogolabrus adspersus*), northern puffer (*Sphoeroides maculatus*), common mummichog (*Fundulus heteroclitus*), striped

killifish (or striped mummichog, *Fundulus majalis*), sheepshead minnow (*Cyprindon variegatus*), Atlantic silversides (*Mendia menidia*), fourspine stickleback (*Apeltes quadracus*), threespine stickleback (*Gasterosteus aculeatus*), northern pipefish (*Syngnathus fuscus*), oyster toadfish (*Opsanus tau*), and bay anchovy (*Ancoa mitchilli*)

Fish that spawn in the Atlantic Ocean, in the vicinity of Great South Bay — Atlantic menhaden (*Brevoortia tyrannus*), bluefish (*Pomatomus saltatrix*), summer flounder (*Paralichthys dentatus*), black sea bass (*Centropristis striata*), and American sand lance (*Ammodytes americanus*)

Fish that spawn in freshwater — striped bass (*Morone saxatilis*)

A large number of rare finfish are collected in Great South Bay from time to time. However, these represent expatriates of primarily southern species, which do not rely on the bay for vital habitat (Bokuniewicz, et al., 1993).

The subject channel represents a somewhat unusual habitat type for south-central Great South Bay. The channel provides a relatively deep-water environment in an area where shallow bottom predominates. This increases habitat diversity, which generally is instrumental in augmenting the complexity and diversity of the associated ecological communities. Certain fish species, in particular, prefer deeper waters; for example, weakfish are known to congregate in such areas during the summer.

The abundance of fishes in Great South Bay is not only affected by the habitat requirements of the individual species and the environmental characteristics of the bay. Recreational and commercial fishing activities also have a major influence. Recreational fishing, primarily from private boats, accounts for the largest share of overall landings (Schreiber, 1973), with winter and summer flounder comprising the majority of the catch (Bokuniewicz, et al., 1993).

An EA involving a federal approval is required to evaluate the potential impacts of the proposed action with respect to Essential Fish Habitat (EFH), in accordance with 50 CFR §600.920 implementing the Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 1-4-267). According to the *Guide to Essential Fish Habitat Designations in the Northeastern United States* (NOAA/NMFS, 1999), the proposed project site lies in Square #47, which is identified as containing EFH for 19 species, all of which are finfish. The subject ten-by-ten-minute square supports various life stages of these 19 species, including eggs, larvae, juveniles and adults.

EFH square #47 contains a wide variety of distinct habitat types, including intertidal flats and salt marshes, nearshore littoral zone, and the open offshore waters of the

Atlantic Ocean. However, only subtidal estuarine habitat is present in the project area, and EFH is not present for those species and life stages that occur in the other types of habitats.

The following is a discussion of the availability of EFH in the subject channel area for each of the individual species identified as having EFH in square #47, taking into account the types of habitat actually present. Species information is derived primarily from the *Essential Fish Habitat Designations within the Northeast Region (Maine to Virginia): Working Copy* (NOAA/NMFS, 1999) and the Marine Ecosystems Analysis Program Monograph *Fish Distribution* (Grosslein and Azarovitz, 1982), with supplemental references as noted.

Atlantic Salmon (*Salmo salar*) — The life-stage summary table indicates that EFH is present in square #47 only for the adult stage of this species. However, the Atlantic salmon spawns in freshwater streams in New England. On this basis, it is concluded that the project location does not contain EFH for Atlantic salmon.

Pollock (*Pollachius virens*) — The life-stage summary table indicates that EFH is present in square #47 only for the juvenile stage of this species. However, juvenile pollock generally are found in waters with higher salinities than occurs in central Great South Bay. Therefore, it is concluded that the project location does not contain EFH for pollock.

Winter Flounder (*Pleuronectes americanus*) — The life-stage summary table indicates that EFH is present in square #47 for all four life stages of this species. The sandy bottom in the subject channel potentially could provide suitable substrate for winter flounder eggs. Larval and juvenile winter flounders are known to occur in large numbers in Great South Bay. Adults may also be present in this area, but to a somewhat lesser degree than larvae and juveniles.

Windowpane Flounder (*Scopthalmus aquosus*) — The life-stage summary table indicates that EFH is present in square #47 for all four life stages of this species. Eggs and larvae are pelagic and, therefore, would not be present on the subject channel bottom. Juvenile and adult windowpanes could be present to some extent at the project site, since these forms are benthic dwellers which prefer the sandy substrate that occurs at this location. Usage of the project area by adults is somewhat less likely than by juveniles, because with growth and maturity this species tends to move offshore into deeper waters.

Atlantic Sea Herring (*Clupea harengus*) — The life-stage summary table indicates that EFH is present in square #47 for the juvenile and adult stages of this species. However, both of these life stages prefer higher salinity waters than occur in Great South Bay, and would not be expected to have a significant presence in the project area.

Bluefish (*Pomatomus saltatrix*) — The life-stage summary table indicates that EFH is present in square #47 for the juvenile and adult stages of this species. This schooling, predatory species often hunts in shallow waters in a wide range of salinities, and both juvenile and adult bluefish are known to be present throughout Great South Bay.

Atlantic Butterfish (*Peprilus triacanthus*) — The life-stage summary table indicates that EFH is present in square #47 for all four life stages of this species. However, the EFH for butterfish comprises the pelagic waters over the continental shelf, and this species is not expected to be found in significant numbers in the moderate salinity waters of the project area.

Atlantic Mackerel (*Scomber scombrus*) — The life-stage summary table indicates that EFH is present in square #47 for all four life stages of this species. However, eggs and larvae would not be present in significant numbers in the project area, since spawning occurs over the continental shelf. NOAA-NMFS Technical Memorandum 141 indicates the both juvenile and adults of this species also are generally found in deeper waters than occurs in Great South Bay. Therefore, it is not likely that the project site supports significant numbers of Atlantic mackerel in any life stage.

Summer Flounder (*Paralichthys dentatus*) — The life-stage summary table indicates that EFH is present in square #47 for the juvenile and adult stages of this species. Both of these stages of summer flounder are known to occur in Great South Bay.

Scup (*Stenotomus chrysops*) — The life-stage summary table indicates that EFH is present in square #47 for the juvenile and adult stages of this species. The habitat range of scup is known to include even the interior, lower-salinity portions of Great South Bay.

Black Sea Bass (*Centropristus striata*) — The life-stage summary table indicates that EFH is present in square #47 only for the adult stage of this species. Adult black sea bass are known to occur throughout Great South Bay between the spring and fall, and overwinter offshore. However, this species tends to aggregate on rough substrate and in wrecks, reefs and other structured bottom, which is not present in the sand-dominated substrate of the subject channel.

Spanish Mackerel (*Scomberomorus maculatus*) — The life-stage summary table indicates that EFH is present in square #47 for all four life stages of this species. However, Spanish mackerel is a migratory pelagic species which can occur in the Long Island region only during the warmer months, and tends to favor higher salinity conditions than is present in the project area. Therefore, it is not expected that the subject channel contains significant numbers of any life stage of this species.

King Mackerel (*Scomberomorus cavalla*) — The life-stage summary table indicates that EFH is present in square #47 for all four life stages of this species. This species has a life history and habitat requirements that are similar to the closely-related Spanish mackerel. Therefore, the conclusions presented above with respect to the Spanish mackerel are also expected to apply to the king mackerel.

Cobia (*Rachycentron canadum*) — The life-stage summary table indicates that EFH is present in square #47 for all four life stages of this species. Similar to Spanish mackerel and king mackerel, cobia is a migratory pelagic species that is found along the southern portion of the U.S. Atlantic coast during most of the year, but which can migrate to the Long Island region during the warmer months. EFH for juvenile and adult cobia is considered to include high-salinity bays, estuaries and seagrass beds, which does not pertain to the moderate salinity conditions that occur in the project area.

Sand Tiger Shark (*Odontaspis taurus*) — The life-stage summary table indicates that EFH is present in square #47 only for the larval stage of this species. However, the primary EFH for neonate sand tiger sharks comprises the shallow coastal waters of the open ocean, mainly to the south of Barnegat Inlet, New Jersey. Therefore, it is not expected that the subject channel contains significant numbers of this species.

Blue Shark (*Prionace glauca*) — The life-stage summary table indicates that EFH is present in square #47 only for the adult stage of this species. This species occurs in the open waters of the Atlantic Ocean and, therefore, is not expected to be present in the project area.

Dusky Shark (*Charcharinus obscurus*) — The life-stage summary table indicates that EFH is present in square #47 only for the larval stage of this species. However, dusky shark larvae are not commonly found in estuaries (NMFS, Office of Protected Resources web site). Therefore, this species is not expected to be present in significant numbers in the project area.

Sandbar Shark (*Charcharinus plumbeus*) — The life-stage summary table indicates that EFH is present in square #47 for the larval, juvenile, and adult stages of this species. However, the primary nursery areas for this species are the bays and estuaries from Delaware to North Carolina, while adults generally are found in shallow coastal areas of the open ocean and the mouths of inlets. Therefore, this species is not be expected to occur in significant numbers in the subject channel.

Skipjack Tuna (*Katsuwonus pelamis*) — The life-stage summary table indicates that EFH is present in square #47 only for the adult stage of this species. However, the habitat for this species comprises the high-salinity, open ocean waters of the mid-Atlantic Bight.

Based on the foregoing analysis, the following is a summary of the species and life stages that potentially could be present in the subject channel in significant numbers.

Species	EFH Life Stage	
	Reported in Square #47	Potentially Present in Significant Numbers at Project Location
Atlantic Salmon	A	NONE
Pollock	J	NONE
Winter Flounder	E,L,J,A	**E,L,J,A**
Windowpane Flounder	E,L,J,A	**J,A**
Atlantic Sea Herring	J,A	NONE
Bluefish	J,A	**J,A**
Atlantic Butterfish	E,L,J,A	NONE
Atlantic Mackerel	E,L,J,A	NONE
Summer Flounder	J,A	**J,A**
Scup	J,A	**J,A**
Black Sea Bass	A	NONE
Spanish Mackerel	E,L,J,A	NONE

Species	EFH Life Stage	
	Reported in Square #47	Potentially Present in Significant Numbers at Project Location
King Mackerel	E,L,J,A	NONE
Cobia	E,L,J,A	NONE
Sand Tiger Shark	L	NONE
Blue Shark	A	NONE
Dusky Shark	L	NONE
Sandbar Shark	L,J,A	NONE
Skipjack Tuna	A	NONE
KEY: E = egg; L = larva; J = juvenile; A = adult		

3.2.2 Benthic Invertebrates

Site-specific information is not available regarding the benthic subtidal invertebrate community that occurs in the navigation channel at Fire Island Pines. However, general information regarding benthic fauna is known from numerous prior studies in similar environments. None of these species is designated as endangered, threatened or of special concern by the federal government or the State of New York.

The benthic community of subtidal unvegetated areas in Great South Bay, which includes the channel proposed for dredging, generally falls into two distinguishable assemblages (Bokuniewicz, et al. 1993): a high salinity fauna (greater than 28 parts per thousand) in the vicinity of Fire Island Inlet; and a lower salinity fauna throughout the rest of the bay. The project area supports the lower salinity assemblage, which is more diverse than the animal community found in the higher salinity area.

Shellfish are an important component of the benthic community throughout Great South Bay, with filter-feeding bivalves generally being the most abundant representatives of this group (U.S. Environmental Protection Agency, 1981). Many species of bivalves are important commercial and/or recreational resources; the project location is likely to contain the economically important hard clam (*Mercenaria mercenaria*) in significant numbers, while soft-shell clam (*Mya arenaria*) probably is less abundant and blue mussel (*Mytilis edulis*) may be present. Gem shell (*Gemma gemma*) also probably is common at this location, and may be the most numerous bivalve species. Other bivalves, such as razor clam (*Ensis directus*) and duck clam or little surf clam (*Mulinia lateralis*), if present, probably occur in relatively small numbers.

Various species of crustaceans, especially crabs, also probably are present in the subject channel. These include mud crabs (*Neopanope texana* and *Panopeus herbsti*) and blue crabs (*Calinectes sapidus*). Other crustaceans that typically occur in this type of habitat include amphipods (e.g., *Corophium tuberculatum*), mysid shrimp (*Neomysis americana*), and sand shrimp (*Crangon septemspinosa*). Polychaete worms (e.g., *Sabellaria vulgaris* and *Trichobranchus glacialis*) also are common.

3.2.3 Aquatic Vegetation

The area proposed for dredging lies entirely within the subtidal zone and, as such, does not contain tidal marsh vegetation. This area also is not known to contain submerged aquatic vegetation (e.g., eelgrass, *Zostera marina*).

3.3 Water Quality

The open waters of Great South Bay are classified SA, which indicates that the best intended use of this area is shellfish harvesting for market purposes. However, the portion of the bay immediately to the north of Pines Harbor, as well as the underwater land within the harbor itself, including the entire area of the subject channel, is closed to shellfish harvesting for the period between May 15 and September 30 each year. This seasonal closure has been enacted by NYSDEC as a precautionary measure, due to the potential for contamination as a result of sanitary waste discharges from vessels docked in the harbor.

3.4 Benthic Sediments and Soils

Grain size analysis has been performed in the laboratory for two sediment samples collected from the channel bottom in the area proposed for dredging. This testing reveals that the sediment is predominantly sand, with small amounts of finer-grained and coarser material. The following table summarizes the results (see the Appendix of this EA for more detailed data):

Sampling Location (see site plan in Figure 1)	Sample #1 Southerly reach of channel, inside the bulkhead line	Sample #2 Northerly reach of channel, outside the bulkhead line
% gravel (>2.00 mm)	1.0	1.0
% sand (0.063 – 2.00 mm)	90.4	99.0
% silt-clay (<0.063 mm)	8.6	0.0

A sediment sample also was collected in the area on the ocean beach proposed for placement of the dredged material. This site comprises the sandy berm of the beach between the seaward toe of the primary dune and the mean high water line on the ocean-side of Fire Island Pines. Sieve analysis of this material revealed a grain size distribution as follows: 1.0 percent gravel, 99.0 percent sand, and 0.0 percent silt-clay (i.e., comparable to sample #2 from the channel bottom).

3.5 Sediment Transport Processes

Coastal:

In the vicinity of the subject channel, the long-term direction of sediment transport along the northerly shore of Fire Island is from west to east. This conclusion is based

on review of recent aerial photographs, reproduced in the Appendix of this EA, which show a significant build-up of sediment on the westerly (i.e., up-drift) side of the westerly jetty at the channel inlet. In addition, the County's bathymetric survey of the site shows that the large shoal in the mouth of the channel forms a lobe that extends in an eastward direction around the end of the westerly jetty.

The bay-side shoreline of Fire Island is bulkheaded in the vicinity of the subject channel. In fact, this length of bulkheading spans a distance of approximately 4,000 feet to the east of the inlet channel, and ends at the easterly boundary of Fire Island Pines, where the community adjoins the federal wilderness area. Erosion of the bay frontage of the federal property is severe, with large holly and oak trees toppling into the water. This is the first section of unarmored shoreline to the east of the subject channel, which may be experiencing accelerated erosion due to the interruption of littoral sand transport from points west. The presence of bulkheading along virtually the entire length of Fire Island Pines may be a factor in exacerbating erosional losses in the wilderness area; there also has been some speculation by certain regulatory agencies (including the NPS) that the common practice of using sand dredged from bay-side projects to nourish ocean-side beaches may be contributing to this erosion problem by removing sand from the sedimentary system on the north side of Fire Island. However, no solid scientific evidence has been assembled to support these hypotheses, and further investigation would be required to formulate more definitive conclusions.

As is true along much of Fire Island, the ocean-side shorefront at Fire Island Pines has been suffering from significant, chronic erosion in recent years. By the mid-1990s, because of progressive shoreline recession, the primary dune in Fire Island Pines had been almost completely washed away, such that the southernmost structures were exposed to potentially destructive damage from the next major storm. In response to these circumstances, a massive beach nourishment project was undertaken in 1997, which involved the placement of approximately 600,000 cubic yards of sand obtained from a near-shore borrow area in the Atlantic Ocean. This material was used to build up the berm of the beach and to reconstruct a continuous line of artificial dunes along the entire frontage of the community. A similar project, which will involve a sand volume of approximately 750,000 cubic yards, is planned for action in early 2003 in order to supplement and strengthen the reconstructed beach and dune (Allan Brockman, President, telephone communication, August 20, 2002).

Wind Transport:

The proposed deposition areas at the east cut consist of sandy vehicular pathways, many of which have been eroded below grade by long-term wind erosion. The scouring effect of wind, combined with vehicular activity, has contributed to the lowering of grades up to 4 to 6 feet along many areas of the roadway. The continuing

scouring has tended to expand the amount of ground surface and vegetation affected. This wind erosion is localized and gradual, but the possible long-term effect of such scouring can be to weaken the dune system and make it vulnerable to wave and water erosion during severe storm events.

3.6 Air Quality

Fire Island Pines enjoys excellent air quality conditions, due largely to its distant location from the major population centers and transportation corridors of the Long Island mainland. The lack of significant vehicular traffic on Fire Island also contributes to these conditions.

The primary source of emissions in Fire Island Pines is the combustion of petroleum gas fuels for cooking and heating, which is provided in portable tanks that are shipped back and forth from the mainland. These fuels are relatively clean-burning, and do not contribute significant quantities of air contaminants; and any such emissions are rapidly dissipated upon release due to the persistent coastal winds that generally occur in the area throughout the year.

The effect that boat exhaust has on air quality has not been well-quantified, but may be an issue with respect to subjective human perception, especially where the engines of power vessels are operated in close proximity to the shore, such as inside harbors and basins. However, these effects typically are localized and temporary, and generally are rapidly dispersed by coastal winds.

3.7 Noise

Ambient noise levels in the proposed project area are highly variable. Wind and surf create a natural background condition that occurs year-round, with levels dependent on the severity of weather conditions. Human activities, both on the water and in the upland portion of the community, also are a key contributor to local noise levels. The levels of human-induced noise is strongly seasonal, generally attaining maximum values during the summertime when residents and visitors are present in the greatest numbers, and being significantly reduced during the winter off-season when the population of Fire Island Pines is substantially lower.

Some of the primary factors in the levels of human-induced noise in the project area include vessel operations in adjoining waters, especially traffic into and out of Pines Harbor and in the adjacent nearshore portion of Great South Bay, human voices, electronic audio equipment, construction activities, activities in the community's commercial district, motor vehicles, and the like. The passage of aircraft creates periodic spikes in noise levels. Overall, ambient noise levels in Fire Island Pines generally are relatively low compared to communities on the Long Island mainland.

3.8 Aesthetic Resources

The visual quality of the coastal area is a significant resource which plays a vital part in attracting people to the waterfront. The Great South Bay and Atlantic Ocean shorelines of Fire Island Pines offer spectacular views, which contribute to the desirability of the community for residential dwellings and recreational pursuits. The built-up environment within the community also possesses important aesthetic qualities. The characteristic "beach house" architectural styling of the individual residences, the compact business district, and the focus of community activities at the water (particularly in the vicinity of the ferry terminal and the adjacent public plaza) are typical of a traditional beach community and are important elements of the visual landscape. The community's identity and aesthetic character also are largely defined by the pedestrian-oriented transportation network and virtual absence of land vehicles.

The widespread use of natural building materials and the dense landscape plantings and areas of retained native vegetation contribute strongly to the visual quality of Fire Island Pines. To a large degree, the landscaping in Fire Island Pines is a natural remnant of the same type of oak-holly habitat as is present in the nearby Sunken Forest preserve, and thus possesses important ecological value as well as aesthetic quality.

3.9 Historic and Archaeological Resources

The project site consists of a subtidal navigation channel proposed for maintenance dredging and the berm of the beach along the Atlantic Ocean which is proposed for dredged material placement. There are no structures of any kind at either location or any other historically significant features. Archaeological resources are not expected to be present at the project site due to the highly dynamic nature of oceanfront beach and the subject channel, as well as the history of recurrent dredging in the channel over the past several decades.

3.10 Socio-Economic Conditions

Fire Island Pines is a mixed use, unincorporated hamlet within the Town of Brookhaven on the Fire Island barrier. The land area in the community is dominated by single-family residential houses, of which there are more than 600. In addition, there are approximately 100 units of cooperative housing. This residential development is supported by and supports a diverse commercial sector which it is estimated comprises more than 100 individual businesses. As noted previously, the community is serviced by numerous contractors, restaurants, clubs, discos, drinking establishments, lodging facilities, utility services, retail stores, personal service shops, real estate offices, solid waste management businesses, and the like. A few dozen of these businesses are housed in the Fire Island Pines commercial district, which primarily is concentrated on the westerly side of the harbor. The remainder mostly are small enterprises, especially

contractors and professionals, that operate without an office or shop in the commercial district.

Fire Island Pines is a thriving community, which experiences a seasonal population boom during the warmer weather. Originally a true "summer community", the Pines now is open year-round. The length of the "season" has expanded gradually over the years, and currently extends from early April through late November. A small number of houses (approximately 20) are occupied year-round, and other residents use their homes for short periods during the "off-season".

The residents of the more than 700 homes in Fire Island Pines derive significant social benefits from their community, as do the numerous visitors who enjoy the Fire Island experience for a day at a time or for longer periods at local lodging facilities. These social benefits are difficult to define in precise, objective terms, but are undeniable for those who return to Fire Island Pines year after year to partake of social activities, including both events that are scheduled for community participation and interaction that occurs at a more informal level, as well as a broad array of recreational opportunities. Fire Island Pines also enjoys a vibrant night life, which revolves around the community's restaurants, drinking establishments, clubs, and discos.

Passenger travel to and from Fire Island Pines occurs via the vessels of Sayville Ferry Service (Kenny Stein, Sayville Ferry Service, telephone communication, August 12, 2002). Current passenger traffic is estimated at approximately 100,000 passenger round trips per year; exact counts are not available because the ferry often stops at several Fire Island communities during a single run out of Sayville. The ferry also serves as the primary means of evacuation from Fire Island Pines in response to hurricane warnings and other emergencies.

Sayville Ferry Service also operates a freight boat, which delivers most of the bulk goods used in the commercial establishments in Fire Island Pines; this operation is estimated to gross approximately $60,000 to $80,000 in business each year. Tony's Barge Service provides for solid waste removal and delivery of vehicles and other large freight items, making an average of four weekly runs (Tom Esposito, telephone communication, August 22, 2002). A third company handles deliveries of most construction materials.

Having a membership of more than 500, the Fire Island Pines Property Owners Association is the primary organizer of social activities in the community. The FIPPOA sponsors major social events (e.g., art shows, auctions, raffles, movies, theater productions, etc.) which raise funds for various community causes. The Pines Community House, owned by the FIPPOA, is the headquarters to the FIPPOA, with a small office used by its administrative staff. The building also contains: the office of the community doctor, who also is provided with an on-site apartment; a small library;

and an event room that is used for inter-denominational religious services, movies, shows, and community meetings. A large outdoor deck provides additional space for various events.

Fire Island Pines also contains other significant community amenities, besides the Community House, which are enjoyed by residents and visitors alike. This includes a public plaza adjacent to the ferry dock, which contains benches and a community notice board, as well as the post office (recently moved from the Community House) and the police station. This plaza adjoins the business district and, thus, serves as a prime location for social congregation and activities.

The Pines Conservation Society is charged with beautifying the community and maintaining the protective dunes through plantings and fencing. This organization also stages the Pines Fashion Show, which is a key annual social event.

Numerous significant economic benefits are realized as a result of the success of Fire Island Pines as a community. These benefits include the private economic activity produced by more than 100 businesses in Fire Island Pines, as well as businesses on the Long Island mainland that are supported by travelers to and from Fire Island (e.g., taxi services, parking facilities, restaurants, etc.), and the sales of goods that are purchased on the mainland for use on Fire Island (e.g., appliances, furniture, building materials, etc.). Additionally, these business generate considerable public revenues through sales and income taxes. Most importantly, the Town of Brookhaven, Suffolk County, Fire Island School District, and other entities derive substantial local property tax revenues from the 700+ homes and the commercial district in Fire Island Pines.

3.11 Topics Eliminated from Further Analysis

The following topics have been eliminated from further analysis in this EA as not being relevant to the proposed action:

Prime or Unique Farmlands — The project area contains no farmland of any kind.

Flood Plains — Although the project area is situated entirely within the 100-year flood plain, as delineated by the Federal Emergency Management Agency on its Flood Insurance Rate Maps, the proposed action does not include any structural improvements or modifications.

Environmental Justice — The proposed action will not affect any socially or economically disadvantaged populations.

4. COMPARISON OF POTENTIAL IMPACTS

4.1 Alternative #1 (Preferred Alternative)

4.1.1 Listed Species

No species that are listed as threatened or endangered by the federal government or New York State are known or suspected to occur within or in the immediate vicinity of the subject channel or the proposed disposal area. Therefore, the proposed maintenance dredging project will not adversely impact listed species.

One aspect of Alternative #1 may have potential positive aspects with respect to the piping plover, a federally-listed threatened species on the Atlantic coast and New York State-listed endangered species. Although piping plovers are not known to have nested in this portion of Fire Island in recent times, the re-establishment of a Pines-to-Talisman/Barrett Beach upland vehicular path would allow beach traffic to be re-routed off the ocean beach in the event that plover nesting does occur. Under present conditions, there is no roadway available behind the dunes onto which beach traffic could be re-routed.

4.1.2 Other Aquatic Species of Concern

The degree of impact experienced by aquatic species due to the proposed project will be minimized by performing dredging in accordance with the requisite environmental windows and other conditions established by the ACOE and NYSDEC. Presently, the period in which dredging is permitted by NYSDEC at the subject location, based upon the SCDPW's prior permit for this project, spans between September 30 and the following April 1. The allowable dredging period under the ACOE permit spans between September 15 and November 15, as specified by NYSDOS on the basis of the impact assessment contained in its "Significant Coastal Fish and Wildlife Habitat" description for Great South Bay-East. However, NYSDOS has indicated that the proposed dredging could be undertaken outside of that window if silt curtains are used in order to control the potential off-site migration of project-related turbidity. Thus, taking into account both sets of restrictions, maintenance dredging of the Fire Island Pines navigation channel can occur without silt curtains between September 30 and November 15, and with silt curtains between November 15 and June 1. However, FINS has informed SCDPW that a March 1, 2003 end deadline applies to this project because the U.S. Fish and Wildlife prohibits beach alterations after this date for avian species protection. Therefore, the deposition of sand on the ocean beach and subsequent relocation to the east cut would need to be completed before March 1, 2003.

Potential impacts to marine species generally will be limited to the immediate area proposed for dredging. Including side slopes, it is estimated that the entire channel area covers approximately two acres of bay bottom; although not all of this area will undergo dredging at this time, since some portions of the channel (especially in the northerly reach) currently exceed the eight-foot authorized depth.

4.1.2.1 Finfish

The proposed maintenance dredging project will disturb an area of bay bottom that is used as habitat by a number of species of finfish. This includes several species for which the subject channel is part of federally-designated Essential Fish Habitat (EFH). The analysis in Section 3.2.1 of this EA indicates that actual EFH may be present at the project location for the following species:

- winter flounder (all stages),
- windowpane flounder (juveniles and adults),
- bluefish (juveniles and adults),
- summer flounder (juveniles and adults), and
- scup (juveniles and adults).

Except for winter flounder, all of the stages and species listed above are highly mobile and, for the most part, would be expected to be capable of actively avoiding direct impact by the operation of the dredge. Winter flounder juveniles and adults are similarly mobile, and also should not be directly impacted by the proposed dredging. However, the sandy bottom in the subject channel is a suitable substrate for winter flounder eggs, which are typically produced between mid-winter and early spring, and if present at the time of dredging would be susceptible to impingement into the dredging equipment. Early larval stages of winter flounder live off the bottom, but could potentially be sucked into the dredge if present in the lower portion of the water column at the time the project is undertaken.

Maintaining water depths in the subject channel by means of the proposed project will retain a habitat type that is somewhat unusual in south-central Great South Bay. This area of relatively deep water, in a portion of the bay where shallow bottom predominates, provides increased habitat diversity. Species that prefer these conditions (e.g., weakfish, which are known to congregate in such channels during the summer) may derive a small benefit from the proposed maintenance dredging.

4.1.2.2 Benthic Invertebrates

The proposed project will result in the direct disruption of the benthic community in the area where the dredging occurs. Non-mobile benthic invertebrates in particular, and especially bivalves, will die when they are transferred to the disposal site along

with the dredged material. However, as noted previously, the area of disturbance will be relatively small, occupying less than two acres of bay bottom.

The post-dredging recovery of the benthic fauna is expected to be relatively rapid and full, since the characteristics of the material being removed by dredging are consistent with the underlying substrate. The standing crop of organisms remaining in the surrounding, undredged area will contribute to the rapid recolonization of the disturbed area by migration and larval recruitment (NYSDEC, 1991). In fact, it should be recognized that the existing benthic community which will be disturbed by the proposed project has become established by recolonization of the site since the previous maintenance dredging operation at this location in 1993.

4.1.2.3 Aquatic Vegetation

The proposed action will not adversely impact aquatic vegetation, since the subject channel area is not known to contain such flora.

4.1.3 Terrestrial Species

The preferred alternative is not expected to have significant impact on terrestrial ecology. The placement of sand on the ocean beach, and the transport of sand along the beach to the east cut, will be conducted on open sandy beach between the high tide line and the dune zone. This zone does not contain significant vegetation, and is subject to disturbance from storm tides and existing vehicular traffic on the beach. The beach area in front of Fire Island Pines is subject to recreational use by residents and visitors during the warmer seasons.

The upland disposal sites in the east cut are vehicular roadways that do not contain vegetation. The areas to the sides of the roadways that contain woodlands and dune vegetation will not be disturbed. The filling of scoured portions of the roadways may benefit the adjacent vegetation by curtailing the undermining of side slopes and loss of adjacent vegetation, which have been occurring in certain areas along the vehicular paths.

The extension of the existing vehicular pathway at the east cut will involve clearing of a small area of vegetation along the north side of the LIPA substation. This vegetation does not consist of any mature barrier beach woodland, but instead consists of disturbed secondary growth including grasses and saplings (wild cherry, oak) that are periodically trimmed back to provide a buffer between the substation and adjacent woodlands. The affected area does not contain any large oak, holly or sassafras trees typical of the adjacent barrier beach woodlands. The amount of vegetation to be cleared consists of an approximately 40-foot by 12-foot area adjacent to the fence on the north side of the substation.

The subject area contains approximately 15 to 20 saplings of under 1 inch DBH, and one or two trees over 5 inches DBH. The construction of this connector roadway will not affect the barrier beach woodlands that exist further north of the substation and helicopter pad, closer to the bayside shoreline.

4.1.4 Water Quality

As described in Section 3.4, the material to be dredged consists predominantly of sand. Because of the small fraction of fine-grained particles, it is not expected that turbidity related to sediment resuspension during the proposed dredging operation will be a significant problem. Furthermore, although this material was tested only for grain size distribution, coarse-grained sediment of this type usually has a relatively low organic content. This will moderate potential consumption of dissolved oxygen and other adverse water quality effects, and associated impacts to marine organisms. Finally, as noted in Section 4.1.2, silt curtains will be utilized if the dredging is undertaken between November 15 and June 1 in order to control the potential off-site migration of turbidity, in accordance with a restriction imposed by NYSDOS for the ACOE approval.

4.1.5 Sediment Transport Processes

Analysis of two samples collected from the material proposed for dredging and one sample from the proposed dewatering site on the ocean-side of Fire Island Pines indicates that the particle characteristics of the sediment at the two locations are similar. Such grain-size compatibility will ensure that the dredged material is suitable for deposition on the ocean beach. This will avoid problems of excessive loss of the dredged material that can occur when the average grain size of this material is significantly smaller than the sediment in-place at the deposition location.

The placement of sand in the scoured areas of the sand pathways in the east cut will temporarily reverse the effects of long-term wind erosion in those localized areas. This will have the benefit of curtailing infringement of eroded areas into adjacent dune vegetation and woodlands. The placement of sands on the pathways will provide a renewed source of sand for wind erosion, but such sands are generally dispensed into the nearby dune systems over a prolonged period as part of the nature growth and movement of dunes. Raising the grade of the cut would help to reduce the potential for the weakening of the dune integrity and vulnerability to storm flood events. Several areas of the east cut road are so low in elevation that they experience flooding during high tide and high runoff events. Placement of sand in these areas will eliminate the standing water that adversely affects vehicular movement along those sections of roadway.

Placement of sands near the bayside (above the high tide line) and to the north of the LIPA electrical substation could have potential positive impacts to reducing the threats of bayside erosion. The positive impacts would be small and not immediate, but any activity that places more sand upland of high erosion areas could help in delaying further encroachment of the shoreline in vicinity of the substation.

4.1.6 Air Quality

The proposed project does not entail permanent air emissions. Any emissions released due to operation of the dredging equipment will be minor and temporary.

Scheduling the project prior to the arrival of most of the seasonal residents of Fire Island Pines (i.e., before early April) will minimize the potential for nuisance odors related to the decay of organisms transferred to the beachfront disposal location by the hydraulic dredging operation.

The proposed project will allow prolonged use of the subject channel for navigation purposes, thereby maintaining vessel traffic into an out of Pines Harbor. This will continue associated minor effects related to boat exhausts, which would be sharply curtailed or eliminated under the No-Action Alternative.

4.1.7 Noise

Any noise occurring during operation of the dredging equipment will be minor and temporary. Over the long term, the proposed project will not alter ambient noise conditions.

4.1.8 Aesthetic Resources

The proposed project will affect the ocean beach during placement of dredged sands and trucking of sands to upland areas. These changes will be temporary, and the activity will occur when beach use by visitors is minimal (i.e., in the winter). The east cut pathways will also be temporarily affected by placement of sand and truck activity. No other visible changes will occur in the project area as a result of this action.

The proposed project would bury any colorful garnet/magnetite sands that may be present within the oceanfront dewatering area. These sands add to the visual interest of the beach face. Subsequent wave and wind activity would be expected to re-establish these special sand layers over time.

4.1.9 Historic and Archaeological Resources

The proposed action will not adversely impact historic or archaeological resources, since none are present in the project area.

4.1.10 Socio-Economic Conditions

The proposed project will have a significant beneficial effect with respect to socio-economic factors. Maintenance dredging of the subject channel is needed in order to ensure safe and efficient travel for vessels that use this navigation route. This will allow Fire Island Pines to continue functioning as an active community, since the channel in question is essentially the only means of public access between Fire Island Pines and the outside.

The safety benefits of completing timely maintenance dredging are important from a number of perspectives. On a day-to-day basis, having the channel at or near its authorized dimensions will minimize the potential for vessel incidents such as bottom scraping, groundings, and collisions that can result when boats passing one another are constrained within an ever-narrowing channel. Sufficient depth and width also will ensure that the subject channel provides a safe and efficient means of egress from Fire Island Pines in the event of an emergency evacuation, such as during a hurricane warning, which primarily relies upon the deep-draft ferry to ensure a rapid response.

Maintaining the subject channel will allow continued access to and use of the 700+ homes in Fire Island Pines, which renders substantial social benefits to residents, primarily during the busy "summer season". Providing for the continued use of these homes will sustain the numerous businesses (both in the community itself and at other locations) that rely on the customer base provided by Fire Island Pines residents and visitors. Additionally, the proposed action will provide for continuation of the substantial property tax revenues generated by these uses, which totals well into the millions of dollars for the various taxing entities (Town of Brookhaven, Suffolk County, Fire Island School District, etc.).

Section 4.3.9 provides further discussion of this issue from the perspective of the No-Action Alternative, under a scenario where maintenance dredging of the subject channel is permanently terminated.

4.2 Alternative #2 (Ocean-Side Disposal)

Alternative #2 would have the same impacts as Alternative #1, except those related to the placement of sand in upland areas of the east cut. Under this alternative, all sands deposited on the ocean beach would remain there and not be relocated. The adverse impacts of truck sand from the ocean side to the east cut would be avoided. The positive impacts of placing sand on the scoured pathways of the east cut would not be realized.

This alternative would involve the total transfer of bayside sediments to the ocean side, and would not meet the NPS objective of keeping bayside sediments within the bayside system. The use of some of the sand to help establish the Pines to Talisman/Barrett vehicular path would not occur under this alternative.

There has been speculation that the standard practice of depositing sand from bay-side maintenance dredging projects to ocean-side beaches may be contributing to ongoing erosional impacts to the northerly shorefront of Fire Island and tidal marshes in Great South Bay. However, no such cause-and-effect relationship has been definitively established by scientific evidence, and significant regulatory impediments preclude any action at this time to place dredged material at bay-side locations — see Sections 2.3 and 4.4.4.

4.3 Alternative #3 (No Action)

The No-Action Alternative would permanently halt maintenance dredging of the subject channel. As noted previously, this would eventually have the effect of sharply curtailing or eliminating what is essentially the sole means of access to Fire Island Pines. There is no permanent overland roadway to the community; and although access can be gained along the beach via four-wheel-drive vehicle, this route is severely constrained by permitting restrictions, especially those imposed by the NPS.

4.3.1 Listed Species

As discussed in Section 3.1, no listed species have been documented or suspected of being present within the Fire Island Pines navigation channel or along the oceanfront beach location proposed for the placement of dredged material. Therefore, at first glance the proposed action does not entail any increased impact to such species as compared to the No-Action Alternative. However, failure to perform maintenance dredging, and the associated impact of this critical navigational access to Fire Island Pines, eventually could result in a sharp decline in the human population or the removal of the human presence altogether from this area. Under these circumstances, avian species that generally tend to shy away from developed sites — including piping plover, roseate tern, least tern, and common tern — conceivably could take advantage of this new habitat opportunity to establish nests along this section of oceanfront where no nesting currently occurs.

4.3.2 Other Aquatic Species of Concern

4.3.2.1 Finfish

The proposed project entails the potential for impacting the eggs and possibly the larvae of winter flounder that may be present within the limited area of the Fire Island Pines navigation channel at the time of dredging — see Section 4.1.2.1. The No-Action Alternative would avoid such potential impacts.

Any other species for which the project site represents Essential Fish Habitat would be present at the subject location in stages that are highly mobile, and which generally are capable of escaping from the dredging equipment — see Section 4.1.2.1. Therefore, the No-Action Alternative would not provide a significant benefit with respect to these other fish species (i.e., windowpane flounder, bluefish, summer flounder, and scup).

The No-Action alternative would result in the gradual loss of relatively deep-water habitat from the project location, as the subject channel undergoes progressive shoaling. This would have a small adverse effect on species that utilize this type of habitat; including weakfish, which are known to congregate in such channels during the summer.

4.3.2.2 Benthic Invertebrates

The No-Action Alternative would avoid the direct loss of immobile benthic invertebrates within the limited area of the channel proposed for dredging. However, since the post-dredging recovery of the benthic fauna is expected to be relatively rapid and full (see Section 4.1.2.2), it is not clear that the No-Action Alternative would provide a substantive long-term benefit over the proposed action with respect to these organisms.

4.3.2.3 Aquatic Vegetation

Since no tidal marsh or submerged aquatic vegetation is known to be present within the channel proposed for dredging, the No-Action Alternative would not provide a significant benefit compared to the proposed action with respect to marine flora.

4.3.3 Water Quality

The No-Action Alternative would avoid disturbance of the bay bottom which would occur under the proposed action. However, this would not be expected to provide a significant benefit compared to the proposed action with respect to water quality because: the sediment to be dredged is predominantly sand, thereby moderating the amount of turbidity that dredging would induce; the sandy bottom in the project area likely has a low organic content, thereby moderating the consumption of dissolved oxygen and associated impacts to marine organisms; and, in accordance with permit conditions imposed by NYSDOS, silt curtains will be used in order to control the off-

site migration of turbidity if the project is undertaken between November 15 and June 1.

4.3.4 Sediment Transport Processes

The No-Action Alternative would allow natural sediment transport processes to become reestablished over time at and in the vicinity of the subject channel. This compares to the proposed action, which calls for the sediment dredged from the channel to be transferred to the oceanfront beach at Fire Island Pines. Alternative #4 would more akin to the No-Action Alternative, in that the material dredged from the channel would be retained on the bay-side of the barrier.

4.3.5 Air Quality

The No-Action Alternative would not entail any air emissions. This compares to the minor emissions that will occur under the proposed action, associated with exhaust from equipment during the dredging operation and from the continued use of the subject channel by vessels over the long term.

4.3.6 Noise

The No-Action Alternative would not entail any noise generation, as compared to the minor, noise generation that would occur during the dredging operation under the proposed action.

4.3.7 Aesthetic Resources

As discussed in detail in Section 4.2.9, below, the No-Action Alternative would preclude essentially the only means of human access to Fire Island Pines, which may result in abandonment of all or part of the community for human use. Over the long-term, under this scenario, Fire Island Pines gradually would revert to a more natural condition. However, the presence of abandoned, progressively deteriorating structures would cause a significant adverse impact with respect to the aesthetic character of the area unless these structures were removed from the site (at considerable expense).

4.3.8 Historic and Archaeological Resources

The No-Action Alternative would not provide any historic or archaeological benefit, as compared to the proposed action, since such resources are not present in the project area.

4.3.9 Socio-Economic Conditions

Implementation of the No-Action Alternative would result in a profound adverse impact with respect to socio-economic conditions. It is clear that the availability of safe and efficient navigation through the subject channel is of critical importance to the continued survival of Fire Island Pines as a viable community. Passenger transportation to and from Fire Island Pines relies on the ferry service that berths at the bulkhead in the harbor area at which the subject channel terminates. Freight is delivered and waste materials are removed via the same route. The freight deliveries not only serve the residents directly, but also provide goods that sustain Fire Island Pines' significant commercial sector. As a small, primarily seasonal beach community, Fire Island Pines cannot function without these water-borne transportation services.

At first, excessive shoaling of the subject channel under the No-Action Alternative would adversely affect access to Fire Island Pines by deeper-draft vessels, including the ferry, as well as other commercial vessels. Initially, these boats would be unable to navigate the channel during low tide, but eventually even access during high tide would be precluded if shoaling continued unabated. The failure of the channel to accommodate these larger boats would have an immediate and devastating impact, since they serve the majority of the community's transportation needs. Although most private boats could continue to operate in shallower water depths, Fire Island Pines has limited dockage capacity (approximately 80 slips) and these facilities are essentially fully utilized at the present time, and could not be used to compensate for the loss of deep-draft access to the harbor.

Maintaining adequate depths in the subject channel to accommodate the ferry and freight vessels is essential for maintaining the social benefits that the residents of more than 700 homes and numerous visitors derive from a vital Fire Island Pines community. Considerable economic benefits also are indirectly, but inextricably, tied to the proper maintenance of the subject channel. These include the private economic activity generated by more than 100 business in Fire Island Pines, the various taxes (income, sales, etc.) derived from these business and, most importantly, the substantial local property tax revenues (for the Town of Brookhaven, Suffolk County, Fire Island School District, and other entities) generated from the 700+ homes and the commercial district in Fire Island Pines.

4.4 Alternative #4 (Bay-Side Disposal)

The environmental effects of this alternative would be identical to the proposed action with respect to the dredging operation (unless a different dredging method were utilized). Placement of the dredged material under this alternative would occur at a suitable location (or locations) on the bay-side of the barrier, which contrasts to the upland disposal (with ocean-side dewatering) proposed under the current application.

As discussed in Section 2.3, Alternative #3 is not feasible at this time due to lack of a suitable disposal site that is consistent with the current regulatory policies and requirements of the involved agencies. Because of the unavailability of beach area above the mean high tide line in the vicinity of the subject channel, disposal on the bay-side would of necessity have to extend at least into the intertidal zone and possibly even into the subtidal zone. Local NYSDEC policy-makers historically have not been amenable to the placement of dredged material below the mean high tide line, which they view as the filling of tidal wetlands, and have specifically stated that they would not support this disposal option at the subject location at the present time. NYSDOS has been somewhat more receptive to the general concept of extending dredged material placement below the high tide line, but only in cases where an existing beach area (even a narrow one) is being widened; this is not the case at the subject location, where a functional beach area is essentially completely absent from the bay-side shoreline.

4.4.1 Listed Species

Neither Alternative #3 nor the proposed project would adversely affect any listed species, since such species are not known or believed to be present in the immediate vicinity of the subject location.

4.4.2 Other Aquatic Species of Concern

The effects on finfish and benthic invertebrates would be the same for Alternative #3 as for the proposed project, since the extent of dredging would be identical for both actions — see Section 4.1.2.

4.4.3 Water Quality

Alternative #3 would involve dredging of the subject channel to its authorized dimensions and, therefore, would have a similar effect on water quality as the proposed action — see Section 4.1.3.

4.4.4 Sediment Transport Processes

Both this alternative and the proposed action entail the beneficial reuse of dredged material to address a significant erosion problem. However, Alternative #3 would use a suitable, as yet unidentified disposal location on the bay-side, while it is proposed that the dredged material be placed on an upland location to the east of Fire Island Pines after dewatering.

Alternative #3 is conceptually appealing because it would retain the dredged material in the bay-side sedimentary system, thereby potentially addressing, to some degree,

certain chronic environmental problems in Great South Bay, including the erosion of unarmored sections of the northerly shoreline of Fire Island and the loss of tidal marshlands. However, because of substantive regulatory impediments, as discussed in Section 2.3, this alternative does not appear to be practicable in the near future. Furthermore, the desirability and feasibility of bay-side disposal is a system-wide issue that extends well beyond the limited geographic scope of the subject application, and which should be addressed by broader-scale investigations and analyses.

4.4.5 Air Quality

The effects on air quality would be non-significant for Alternative #3, similar to the proposed project.

4.4.6 Noise

The effects on ambient noise levels would be non-significant for Alternative #3, similar to the proposed project.

4.4.7 Aesthetic Resources

Similar to the proposed project, Alternative #3 would enhance the visual quality of the shoreline (although on the bay-side rather than at an upland location) by means of the beneficial reuse of dredged material for the purpose of mitigating active erosion. Both of these alternatives contrast strongly with the No-Action Alternative, which would entail significant long-term aesthetic impacts related to the abandonment of existing development in Fire Island Pines due to the loss of the predominant access route to the community if the subject navigation channel were not maintained.

4.4.8 Historic and Archaeological Resources

Like the proposed action, this alternative would not adversely affect historic or archaeological resources, since none are present in the project area.

4.4.9 Socio-Economic Conditions

Like the proposed action, Alternative #4 would restore the authorized channel dimensions via dredging, which would ensure continuation of the socio-economic benefits that are derived from activities in the Fire Island Pines community, as described in Section 4.1.9.

4.5 Environmentally Preferable Alternative

The selection of the "environmentally preferable alternative" is based upon an evaluation of the potential or likely impacts of the various alternatives under consideration, and depends on the relative weight that is given to the natural and human environment. The No-Action alternative favors the natural environment, since the disturbances caused by the proposed dredging operation would be completely avoided. Although these disturbances can be moderated by proper dredging techniques, including measures to minimize turbulence and timing the dredging operation to avoid sensitive life stages of marine organisms, even the best-designed dredging project will result in some degree of impact.

Even if it were accepted that the No-Action Alternative is preferable to dredging alternatives with respect to potential ecological benefits, the foregoing analysis indicates that these benefits would not be substantial, given the limited area proposed for dredging and the relatively large number of important species that would not be significantly affected by this project. On the other hand, failure to undertake proper maintenance of the subject navigation channel would have devastating effects on the human environment.

As discussed in Sections 2.3 and 4.3.9, failure to dredge the subject channel eventually would severely constrain access to Fire Island Pines, with the inevitable consequence of substantial adverse socio-economic impacts. Such a loss of access to and use of existing development in the community would be unacceptable to Suffolk County and the Town of Brookhaven, which are partners in the proposed maintenance dredging project. The County and Town have proposed this project under their clear governmental duty to ensure that reasonable actions are undertaken, including maintenance of the subject navigation channel, contingent upon the implementation of appropriate measures to avoid or mitigate potential ecological impacts to the extent practicable, so as to ensure that Fire Island Pines remains a viable community. It also is important to recognize that the No-Action scenario would entail certain environmental impacts, especially with respect to visual resources that would result from the abandonment and gradual deterioration of the existing development in Fire Island Pines, unless substantial public monies were expended to remove these structures.

In contrast to the extreme position that is represented by the No-Action Alternative, in terms of favoring relatively minor ecological benefits over dire socio-economic impacts, the proposed action seeks to achieve an appropriate balance between the natural and human components of the environment. While striving to minimize impacts to natural resources, implementation of the proposed action also will render substantial social and economic benefits, by allowing Fire Island Pines to continue functioning as a community without interruption. Under the proposed action, measures

will be implemented to avoid or mitigate impacts to natural resources to the extent practicable, including:

- the seasonal restrictions set forth in the regulatory approvals for this project will ensure that impacts to natural resources are minimized;

- the amount of material to be removed will be the minimum necessary to achieve the objective of restoring the authorized project dimensions, which will provide for the maximum time period before dredging is needed again at this location;

- the dredged material will be utilized for beneficial reuse, in order to restore an eroding pathway in the upland area to the east of Fire Island Pines; and

- the pathway connection to be established to the east of Fire Island Pines under the proposed disposal plan will provide an alternative vehicular route off the ocean-side beach which can be used in the event that piping plovers nest in this area in the future.

Sufficient information is not presently available to determine whether Alternative #4, which calls for the dredged material from the proposed project to be retained in the bay-side sedimentary system, would be more desirable overall than the current proposal to transfer this material to the ocean-side for beach nourishment purposes. Some of the involved regulatory agencies (NYSDEC and NYSDOS) have indicated that the lack of bay-side beaches in the project area would make disposal of dredged material problematic, at best. Establishing that bay-side disposal is approvable, if possible at all, would require additional investigation of ecological impacts, which would delay dredging of the subject channel. Continued infilling of the channel during such a delay would be expected further diminish navigability, thereby decreasing vessel safety. Overall, therefore, it appears at the present time that the proposed action is the "environmentally preferable alternative" when all parameters are considered in an objective, balanced assessment of impacts and benefits.

5. RESOURCE VALUE IMPAIRMENT

The most important statutory directive for the NPS is provided by interrelated provisions of the Organic Act of 1916 and the General Authorities Act of 1970. The latter legislation was refined by a 1978 amendment (the "Redwood amendment") contained in a bill expanding Redwood National Park, which states in part that:

"Congress further reaffirms, declares, and directs that the promotion and regulation of the various areas of the National Park System, as defined in section 1c of this title, shall be consistent with and founded in the purpose established by section 1 of this title [the

> Organic Act], to the common benefit of all the people of the United States. The authorization of activities shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress." (16 USC §1a- 1)

This passage from the legislation has been referred to as the "non-derogation standard", where "derogation" in the legislation is equivalent to "impairment" as used by the National Park Service in the *2001 NPS Management Policies*. For simplicity, *Management Policies* uses the term "impairment", not both statutory phrases, to refer to the single standard. Implementation of this standard ensures that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

The determination as to whether a given action would cause impairment is based upon the professional judgment of the responsible NPS manager, who is charged with evaluating whether the action would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. Whether an impact meets this definition depends on the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question in combination with other impacts.

An impact to any park resource or value may constitute an impairment. An impact would be more likely to constitute an impairment to the extent that it affects a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

An impact would be less likely to constitute an impairment to the extent that it is an unavoidable result, which cannot reasonably be further mitigated, of an action necessary to preserve or restore the integrity of park resources or values. Impairment may occur from visitor activities, NPS activities in the course of managing a park, or activities undertaken by concessioners, contractors, and others operating in the park. The "park resources and values" that are subject to the non-impairment standard include:

- the park's scenery, natural and historic objects, and wildlife, and the processes and conditions that sustain them, including, to the extent present in the park:

    - the ecological, biological, and physical processes that created the park and continue to act upon it,
    - scenic features,
    - natural visibility, both in daytime and at night,
    - natural landscapes,
    - natural soundscapes and smells,
    - water and air resources,
    - soils,
    - geological resources,
    - paleontological resources,
    - archeological resources,
    - cultural landscapes,
    - ethnographic resources,
    - historic and prehistoric sites, structures, and objects,
    - museum collections, and
    - native plants and animals;

- opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing any of them;

- the park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and

- any additional attributes encompassed by the specific values and purposes for which it was established.

With regard to the action that is the subject of this EA, the impact assessment presented in Section 4 indicates that the proposed maintenance dredging project is expected to result in minor environmental impacts, primarily limited to the authorized channel area. This project:

- will not affect federally or New York State-listed endangered or threatened species;

- will have a geographically limited effect on Essential Fish Habitat for the egg stage and possibly the larval stage of winter flounder, and will not affect EFH for any other species;

- will affect marine habitat in a limited area of subtidal bottom in Great South Bay which has been subject to prior disturbance related to periodic maintenance dredging operations over the years;

- will mitigate potential impacts to marine habitat by observing environmental windows and other conditions imposed under the ACOE and NYSDEC permits, and utilizing silt curtains if deemed appropriate by those agencies;

- will not impact tidal marshes or submerged aquatic vegetation;

- will not cause significant adverse impacts to water quality, given that the material proposed for dredging consists primarily of sand and contains only a small percentage of fine-grained particulates;

- will complete a pathway connection on the upland portion of Fire Island, which will provide an alternate vehicular route off the ocean-side beach that can be used in the event that piping plovers nest in this area in the future;

- will not result in significant adverse impacts with respect to air quality, noise, aesthetic resources, or historic and archaeological resources; and

- will not result in adverse impacts with respect to prime or unique farmlands, or flood plains.

Based on the foregoing assessment of impacts, it is concluded that the proposed action would not cause impairment to natural or cultural resource values, consistent with NPS management policies for Fire Island National Seashore.

6. CONSULTATION AND COORDINATION

The SCDPW is the applicant for the proposed action. The Town of Brookhaven, in whose municipal jurisdiction the project site is located, is a partner in this action. The Town initiated the process to undertake the proposed dredging, by means of a written request to the SCDPW in the form of a letter dated December 11, 2001 (included in the Appendix of this EA).

As noted in Section 2.1, the SCDPW already has received an authorization to undertake the project, as proposed in this EA, from the ACOE via Nationwide Permit #35; and, as part of the ACOE review process, has received coastal consistency concurrence from NYSDOS. Copies of correspondence from the ACOE and NYSDOS are provided in the Appendix of this EA.

The SCDPW has submitted an application to NYSDEC for the proposed project, and is awaiting that agency's response. It is anticipated that this approval will be received in the near future, since the current proposal is essentially the same as the prior maintenance dredging operation approved by NYSDEC and undertaken by the SCDPW in 1993.

A scoping meeting was held in conformance with the requirements of NEPA on July 16, 2002 at the NPS/FINS facility located at 120 Laurel Street in Patchogue, New York. Representatives from the NPS and SCDPW participated in that meeting.

During the course of preparing this EA, preliminary feedback regarding the feasibility of the bay-side disposal alternative was obtained from two key agencies involved in the regulatory review process for dredging activities, NYSDOS (Steven Resler, Division of Coastal Resources, telephone communication, July 23, 2002) and the Region 1 Office of NYSDEC (George Hammarth, Division of Marine Habitat Protection, telephone communication, July 31, 2002).

Further meetings were held between the NPS, NYSDEC and SCDPW during October and November, and a field inspection of upland disposal sites at the east cut was performed on December 2, 2002.

This EA has been prepared with input from the Fire Island Pines Property Owners Association (Allan Brockman, President, telephone communication, July 23, August 8 and 20, 2002), which is the primary community organization in Fire Island Pines. The FIPPOA is fully in support of the proposed action.

Input in preparing this EA also was obtained from Sayville Ferry Service and Tony's Barge Service, key stakeholders at the subject location, and both of whom are strong proponent of the proposed action. Sayville Ferry Service has encountered at least one recent instance of its ferry hitting bottom in the subject channel (Kenny Stein, telephone communication, August 12, 2002). The self-propelled barge operated by Tony's Barge Service became stuck several times during the early spring of 2002 and regularly rubs the bottom during more recent runs (Tom Esposito, telephone communication, August 22, 2002).

Copies of this EA are being distributed in accordance with the requirements of NEPA and the usual practices of the Fire Island National Seashore. This distribution list will include, but not necessarily be limited to, the following entities:

- U.S. Army Corps of Engineers, New York District
- U.S. Fish and Wildlife Service, New York Field Office
- National Marine Fisheries Service, Northeast Region
- New York State Department of Environmental Conservation, Region 1
- New York State Department of State, Division of Coastal Resources
- Suffolk County Department of Planning

- Town of Brookhaven, Department of Planning, Environment and Development
- Fire Island Pines Property Owners Association
- Local libraries
- Federal, State, and local legislators

In addition to the above distribution list, this EA also will be made available to other interested parties upon request.

The Regional Director of the National Park Service has reviewed this environmental assessment and approved its distribution for public comment. A news release was sent to Long Island media contacts announcing the availability of this environmental assessment. Copies of this environmental assessment were sent to relevant federal, state, and local officials, local libraries, and a list of over a hundred people who have expressed a strong interest in issues affecting Fire Island National Seashore. Upon request, copies will be sent to other interested people. A public meeting may be scheduled during the comment period to explain this assessment, discuss impacts and alternatives, answer questions, and receive public input. All comments received on this assessment will be carefully reviewed. After this review, the Regional Director has two choices: to approve a Finding of No Significant Impact (FONSI) and end the NEPA compliance process, or to find that one or more significant impacts may occur and therefore an Environmental Impact Statement (EIS) must be prepared and distributed for public comment.

7. COMPLIANCE FRAMEWORK

The following federal laws and associated regulations have provided direction in preparing this EA with respect to the design of the project alternatives, the analysis of impacts, and the formulation of appropriate mitigation or avoidance measures:

- **National Environmental Policy Act of 1969 (NEPA; 42 USC §4321-4370):** NEPA lists among its purposes encouraging "harmony between [humans] and their environment and promot[ing] efforts which will prevent or eliminate damage to the environment...and stimulate the health and welfare of [humanity]". This EA is governed by and has been prepared consistent with the provisions of NEPA.

- **Clean Water Act of 1972, as amended (CWA; 33 USC §1251-1387):** The purposes of the CWA are to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters". To advance this goal, the ACOE has been charged with evaluating federal actions that entail the potential to degrade waters of the U.S. and issuing permits for actions that are consistent with the CWA. The U.S. Environmental Protection Agency also has responsibility for oversight and review of permits and actions that

affect the waters of the U.S. The proposed action has been evaluated with respect to potential impacts on water quality (see Sections 3.3 and 4.1.3).

- **Coastal Zone Management Act of 1972 (CZMA; 16 USC §1451-1464):** The CZMA present a congressional declaration to "preserve, protect, develop, and where possible, to restore or enhance, the resources of the Nation's coastal zone for this and succeeding generation". The CZMA also encourages "states to effectively their responsibilities in the coastal zone through the development and implementation of management programs to achieve wise use of the land and water resources of the coastal zone". In accordance with the CZMA, the State of New York has adopted state laws and regulations, including a Coastal Management Plan (CMP), which is administered by NYSDOS. All actions proposed by federal, state, and local agencies in New York must be consistent or compatible with the CMP, as determined by NYSDOS. The proposed action has been determined to be consistent with the CMP, as outlined in correspondence from NYSDOS dated March 27, 2002 (included in the Appendix of this EA).

- **Endangered Species Act of 1973, as amended (ESA; 16 USC §1531-1544):** The purposes of the ESA include providing "a means whereby ecosystems upon which endangered species and threatened species depend may be conserved". According to the ESA "all Federal departments and agencies shall seek to conserve endangered species and threatened species" and "[e]ach federal agency shall...insure that any action authorized, funded, or carried out by such agency...is not likely to jeopardize the continued existence of any endangered species or threatened species". The ESA is administered by the U.S. Fish and Wildlife Service (non-marine species and marine turtle upon land) and the National Marine Fisheries Service (marine species, including anadromous fish and marine mammals). The proposed action has been evaluated with respect to potential impacts on federally-listed species (see Sections 3.1 and 4.1.1).

- **Magnuson-Stevens Fishery Conservation and Management Act, as amended (MSFCMA; 16 USC §1801 *et seq.*):** The congressional purposes of the MSFCMA include actions "to conserve and manage the fishery resources found off the coasts of the United States, and the anadromous species and Continental Shelf fishery resources of the United States". Such actions, which fall under the regulatory authority of the National Marine Fisheries Service, including supporting and encouraging implementation and enforcement of international fishery agreements, promoting commercial and recreational fishing under sound conservation and management principles, preparing fishery management plans, and promoting protection of essential fish habitat during review of federal actions. According to the

MSFCMA, "essential fish habitat" (EFH) means "those waters and substrate necessary for fish spawning, breeding, feeding or growth to maturity". This EA includes an EFH assessment, in accordance with the provisions of the MSFCMA (see Sections 3.2.1 and 4.1.2.1).

8. REFERENCES

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Hammarth, George. New York State Department of Environmental Conservation, Bureau of Marine Habitat Protection, Region 1. Telephone communication. July 31, 2002.

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National Oceanic and Atmospheric Administration/National Marine Fisheries Service. Undated. Dusky Shark. Species description provided on the NMFS web site (www.nmfs.noaa.gov/ prot_res/species/dusky_shark.html and www.nmfs.noaa.gov/prot_res/species/ dusky_shark2.html).

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South Shore Estuary Reserve Council. April 2001. *Long Island South Shore Estuary Reserve Comprehensive Management Plan*. 107 pages plus appendices.

Stein, Kenny. Sayville Ferry Service. Telephone communication. August 12, 2002.

U.S. Army Corps of Engineers, New York District. December 1975. Final Environmental Impact Statement: Maintenance of Great South Bay Channel and Patchogue River and Long Island Intracoastal Waterway, New York navigation projects. 72 pp. plus appendices.

U.S. Department of the Interior, National Park Service. *2001 NPS Management Policies*.

U.S. Department of the Interior, National Park Service. *Environmental Assessment for Dredging the Sailor's Haven Marina Channel*. August 6, 2001.

U.S. Department of the Interior, National Park Service. *Environmental Assessment: Rehabilitate Beach Facilities and Habitats at Barrett and Talisman Beaches*. May 2001.

U.S. Department of the Interior, National Park Service. Manual accompanying Director's Order #12 relative to *Conservation Planning, Environmental Impact Analysis, and Decision-making* (effective January 8, 2001).

U.S. Environmental Protection Agency. 1981. *Estuarine Impact Assessment (Shellfish Resources) for the Nassau-Suffolk Streamflow Augmentation Alternatives: Draft Report on Existing Conditions*. Region II, New York.

APPENDICES

Project Plan and Key Map

Letter dated December 11, 2001 from the Town of Brookhaven to the Suffolk County Department of Public Works (1 page).

Memorandum from the Suffolk County Department of Public Works, Laboratory Division, to the SCDPW, Waterways Division (1 page).

Letter dated May 31, 2002 from the U.S. Army Corps of Engineers to the Suffolk County Department of Public Works (6 pages, including 4 pages of project plans).

Letter dated March 27, 2002 from the New York State Department of State to the Suffolk County Department of Public Works (3 pages, including 2 pages of completed Coastal Consistency Assessment Form).

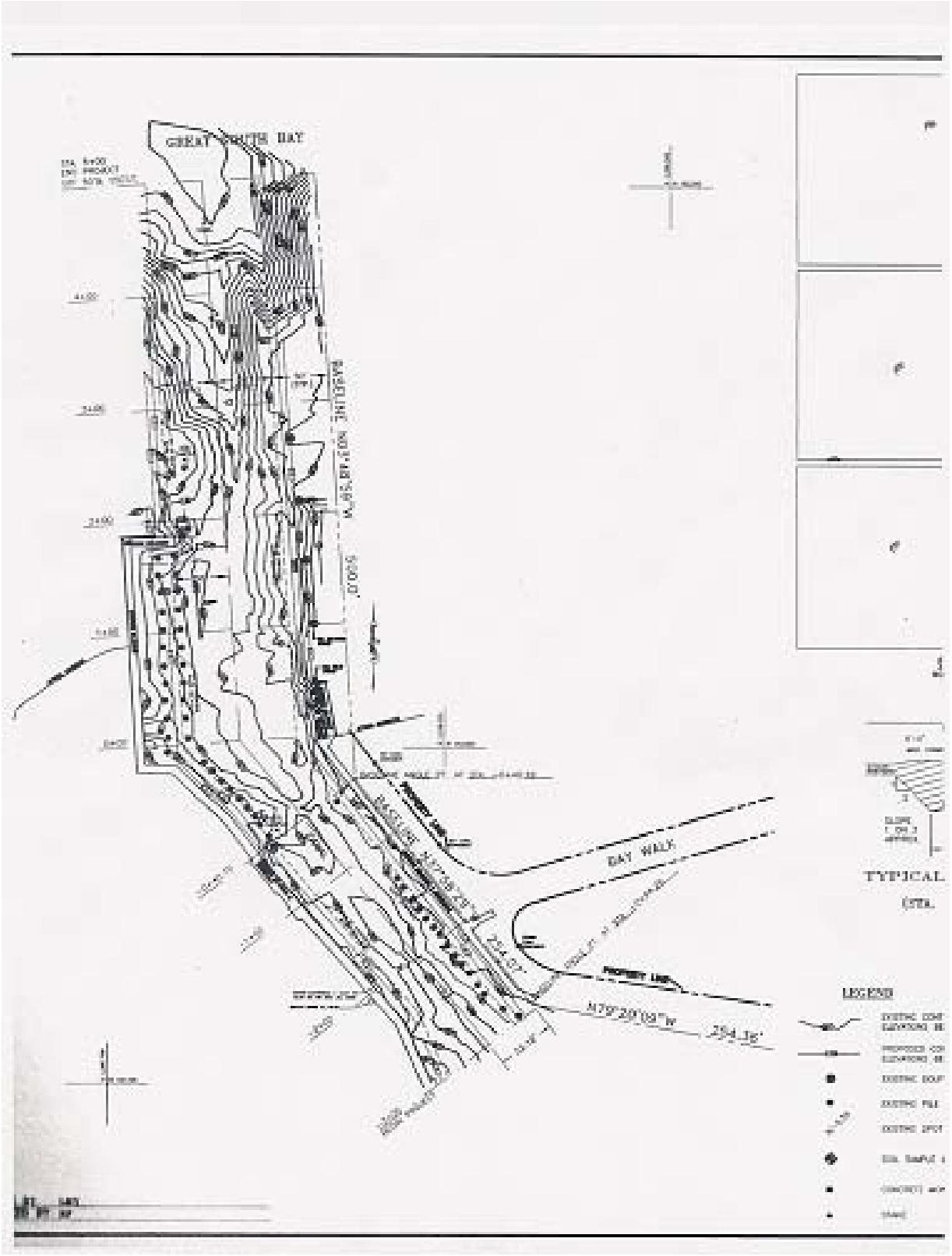
Letter dated October 16, 2002 from Tony's Barge Service, Inc. to the Suffolk County Department of Public Works (1 page).

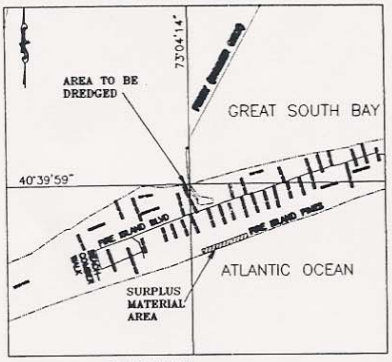
Aerial photography of project area, including closeup view showing Pines Harbor and subject channel (scale 1" = 200'), and wider view showing easterly limit of Fire Island Pines community adjoining federal wilderness area (scale 1" = 300').

Proposed Placement of Dredged Sands – Fire Island Pines Channel Dredging.

Typical X-Sections of Fill Areas.

Photographs.


GREAT SOUTH BAY
BAYLINE
BAY WALK
PROPERTY LINE
N79°20'00"W
254.35'
TYPICAL
LEGEND



KEY MAP
1"= 1,500'±

GENERAL NOTES

1. COORDINATES ARE BASED ON THE LONG ISLAND ZONE OF THE NEW YORK STATE PLANE COORDINATE SYSTEM USING THE LAMBERT CONFORMAL CONIC PROJECTION WHICH ARE PARALLEL AND PERPENDICULAR TO A MERIDIAN PASSING THROUGH THE ORIGIN WHICH IS THE INTERSECTION OF LATITUDE 40 DEGREES 30 MINUTES NORTH AND LONGITUDE 74 DEGREES 00 MINUTES WEST AND GIVEN COORDINATES NORTHING 150,000 AND EASTING 2,000,000 FEET (N.A.D. 27).

2. MEAN LOW WATER DATUM AS DETERMINED AT B&I COAST & GEODETIC SURVEY MARKER P 375 [PID - KU0198] (THE PLANE OF MEAN LOW WATER IS 0.10 FEET BELOW MEAN SEA LEVEL).

3. THE MEAN RANGE IS 1.1 FEET.

4. ELEVATIONS ARE IN MEAN LOW WATER DATUM ; FIELD LOCATIONS WERE MADE BETWEEN 01/25/02 AND 01/29/02 BY L.K. McLEAN ASSOCIATES, P.C.

5. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE BY L.K. McLEAN ASSOCIATES, P.C. ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THE TIME.

6. UNAUTHORIZED ALTERATION OR ADDITION TO THESE DRAWINGS IS A VIOLATION OF SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

℄ TIES

SEE SKETCHES THIS SHEET

Number	Northing	Easting	Elevation	Full Desc
106	161823.0485	2258065.4365	5.8	MON CNC FND
115	161985.9577	2257938.3708	6.0	MON CNC SET
116	161972.0304	2257920.5616	4.4	STK SET
117	161899.0651	2257977.5164	3.6	STK SET
118	161809.2104	2258047.6570	3.8	STK SET
119	161912.9641	2257995.3389	7.2	MON CNC SET

BENCH MARK

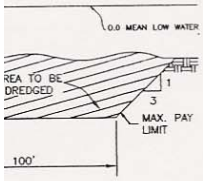
BM1, ELEVATION 4.03 FEET ABOVE MLW, SW CORNER 3'x3' CONCRETE FOOTING FOR FLAG POLE SOUTH SIDE OF MARINA.

BM2, ELEVATION 8.60 FEET ABOVE MLW, NE CORNER OF CONCRETE PLATFORM ON A 2 STORY WHITE STUCCO HOTEL ON THE WEST SIDE OF THE MARINA.

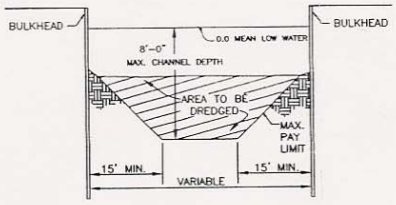
TABLE OF EARTHWORK

(APPROX.)

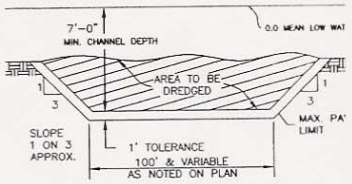
STATION TO STATION	CUBIC YARDS MATERIAL NET	ROUNDE
-3+00 TO 4+00	4,845 C.Y.	



ANNEL SECTION
TO SCALE
TO STA. 4+00)



TYPICAL CHANNEL SECTION
NOT TO SCALE
(STA. 0+00 TO STA. -3+00)



TYPICAL CHANNEL SECTIO
NOT TO SCALE
(STA. -3+00 TO STA. 4+00)

C.I.)
LOW WATER

2' C.I.)
LOW WATER

N

DATE	BY	DESCRIPTION	APPROV. BY
02/14/02	M.A.	ADDED SOIL SAMPLE LOCATIONS	E.A.B.

REVISIONS

L. K. McLEAN ASSOCIATES, P.C.
CONSULTING ENGINEERS
437 SO. COUNTRY ROAD, BROOKHAVEN, NEW YORK

Date: February 6, 2002 | LKMA File No.02010.C01

DATE	STATION TO STATION
1/28/02	-3+00 to 0+00
1/29/02	0+00 to 5+00

SOUNDINGS DATUM = M.L.W.

COUNTY OF SUFFOLK
DEPARTMENT OF PUBLIC WORKS
YAPHANK, NEW YORK

CHARLES J. BARTHA, P.E. – COMMISSIONER

MAINTENANCE DREDGING AT

Fire Island Pines

Town of Brookhaven

PROJECT NO.	SCALE	SHEET 1 OF 2
	1" = 50'	

Town of
Brookhaven
Long Island

John Jay LaValle, Supervisor

December 11, 2001

Mr. William S. Shannon, P. E.
Chief Engineer
Suffolk County Department of Public Works
335 Yaphank Avenue
Yaphank, NY 11980

RECEIVED
DEC 14 2001
Department of Public Works
Chief Engineers Office

RE: Request to Dredge Entrance Channel to Fire Island Pines

Dear Mr. Shannon:

By copies of correspondence from the Fire Island Pines Property Owner's Association, the Sayville Ferry Service, and Tony's Barge Service, I have been advised that the entrance channel to Fire Island Pines has shoaled and is in need of dredging. On behalf of the Fire Island Pines Property Owners Association, the Sayville Ferry Service and Tony's Barge Service, I am requesting that the dredging of the entrance channel to Fire Island Pines be added to the schedule of dredging projects for 2002.

Thank you in advance for your assistance on this request and should you have any questions or need additional information, I would ask that you contact the Town's Director of Environmental Protection, Jeffrey Kassner at (631) 451-6455.

Very truly yours,

JOHN JAY LAVALLE
Supervisor
Town of Brookhaven

JJL:sd

Office of the Supervisor
3233 Route 112 • Medford • NY 11763 • Phone (631) 451-9100 • Fax (631) 451-6677
www.brookhaven.org

COUNTY OF SUFFOLK

ROBERT J. GAFFNEY
SUFFOLK COUNTY EXECUTIVE

DEPARTMENT OF PUBLIC WORKS

CHARLES J. BARTHA, P. E.
COMMISSIONER

MEMORANDUM

To: Hy Smith, Waterways Division
From: Richard Carioto, Laboratory Division
Date: February 21, 2002
Subj.: Waterways Material Gradation
RE: Fire Island Pines

The following are the results of the tests performed on the samples delivered to the laboratory on February 11, 2002 by L.K. McLean Assoc.:

Percent Passing

Sieve Size	Marina (1)	Bay (2)	Deposition Site (3)
1½" (37.5mm)			
1" (25mm)			
¾" (19mm)			
½" (12.5mm)			
3/8" (9.5mm)	100	100	100
¼" (6.3mm)	100	100	100
No. 4 (4.75mm)	100	100	100
1/8" (3.17mm)	99	99	100
No. 8 (2.36mm)	99	99	99
No. 10 (2.00mm)	99	99	99
No. 16 (1.18mm)	98	99	97
No. 20 (0.850mm)	96	97	90
No. 30 (0.600mm)	91	91	71
No. 40 (0.425mm)	75	70	41
No. 50 (0.300mm)	41	30	10
No. 80 (0.180mm)	15	2.8	1.1
No. 100 (0.150mm)	12	1.0	0.7
No. 200 (0.075mm)	9.4	0.0	0.4
No. 230 (0.063mm)	9.1	0.0	0.0
No. 270 (0.038mm)	8.6	0.0	0.0

335 YAPHANK AVENUE
YAPHANK, N.Y
(631) 852-4000
FAX (631) 852-4150

DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
JACOB K. JAVITS FEDERAL BUILDING
NEW YORK, N.Y. 10278-0090

May 31, 2002

REPLY TO
ATTENTION OF:
Eastern Permits Section

SUBJECT: Application No. 2002-00305-L4 by Suffolk County Department of Public Works (Fire Island Pines)

William S. Shannon, P.E.
Chief Engineer
Suffolk County Department of Public Works
335 Yaphank Avenue
Yaphank, New York 11980

Dear Mr. Shannon:

On December 19, 2001, the New York District Corps of Engineers received a request for Department of the Army authorization to maintenance dredge 6,000 cubic yards to a depth of 8 feet below mean low water to be placed along 1,000 linear feet of beach as beach nourishment. The site is in Fire Island Pines, Great South Bay located at Fire Island Pines, Town of Brookhaven, Suffolk County, New York.

Based on the information submitted to this office, our review of the project indicates that an individual permit is not required. It appears that the activities within the jurisdiction of this office could be accomplished under Department of the Army Nationwide General Permit Number 35. The nationwide permits are prescribed as an Issuance of Nationwide Permits in the Federal Register dated January 15, 2002 (67 FR 2020). The work may be performed without further authorization from this office provided the activity complies with the permit conditions listed in Section B, No. 35, Section C, any applicable New York District regional conditions, the following special condition(s), and any applicable regional conditions added by the State of New York, copies enclosed.

Special Condition

(A) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States

on account of any such removal or alteration.

This determination covers only the work described in the submitted material. Any major changes in the project may require additional authorizations from the New York District.

Care should be taken so that construction materials, including debris, do not enter any waterway to become drift or pollution hazards. You are to contact the appropriate state and local government officials to ensure that the subject work is performed in compliance with their requirements.

This verification is valid for a period of two years from the date of this letter, unless the nationwide permit is modified, suspended or revoked. This verification will remain valid for two years from the date of this letter if the activity complies with the terms of any subsequent modifications of the nationwide permit authorization. If the nationwide permits are suspended, revoked, or modified in such a way that the activity would no longer comply with the terms and conditions of a nationwide permit, and the proposed activity has commenced, or is under contract to commence, the permittee shall have 12 months from the date of such action to complete the activity.

Within 30 days of the completion of the activity authorized by this permit and any mitigation required by this permit, you are to sign and submit the attached compliance certification form to this office.

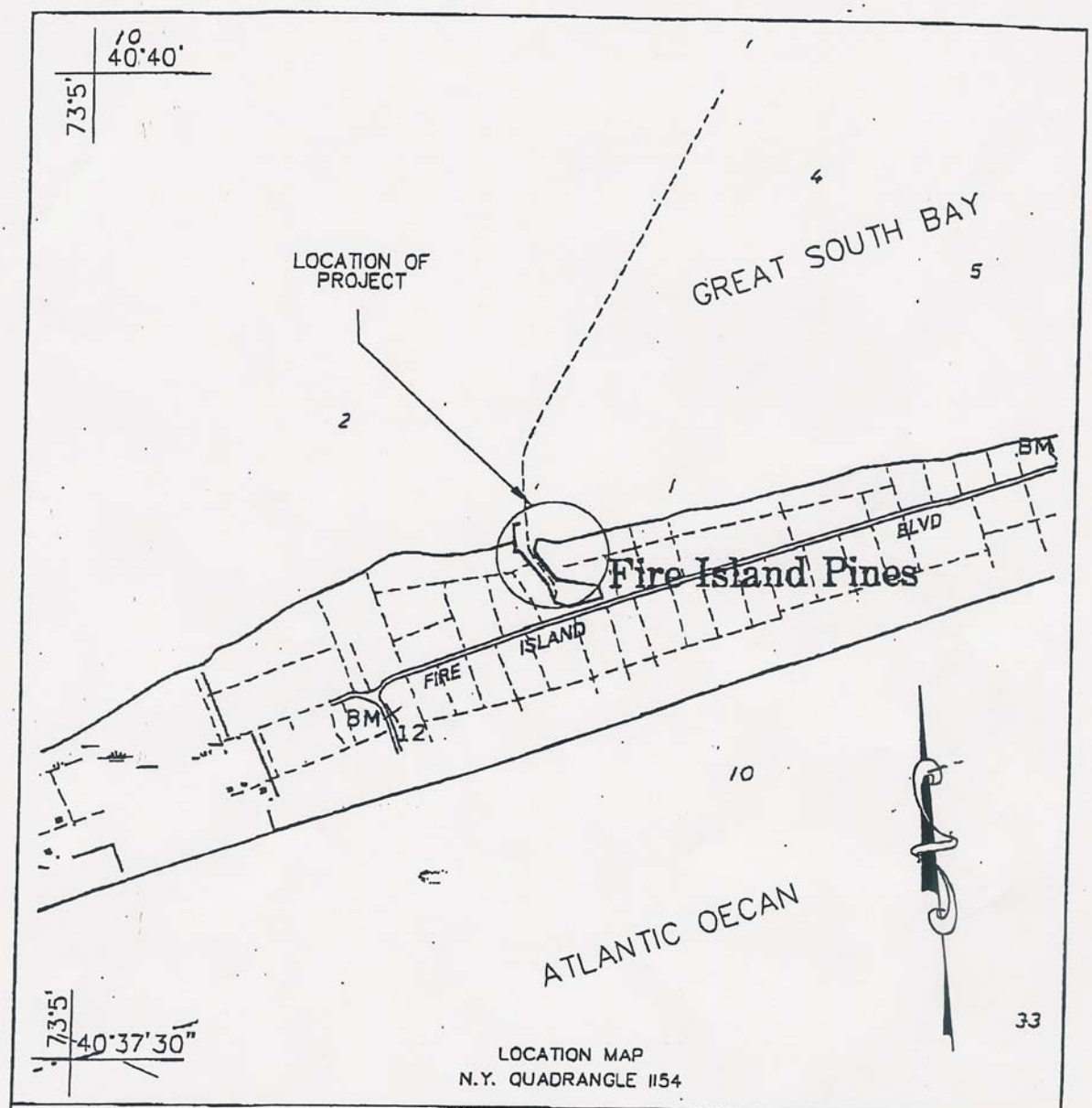
If any questions should arise concerning this matter, please contact Denise Butts, of my staff, at (212) 264-3913.

Sincerely,

Marc Helman

Dr. Marc Helman
Acting Chief,
Eastern Permits Section

Enclosures

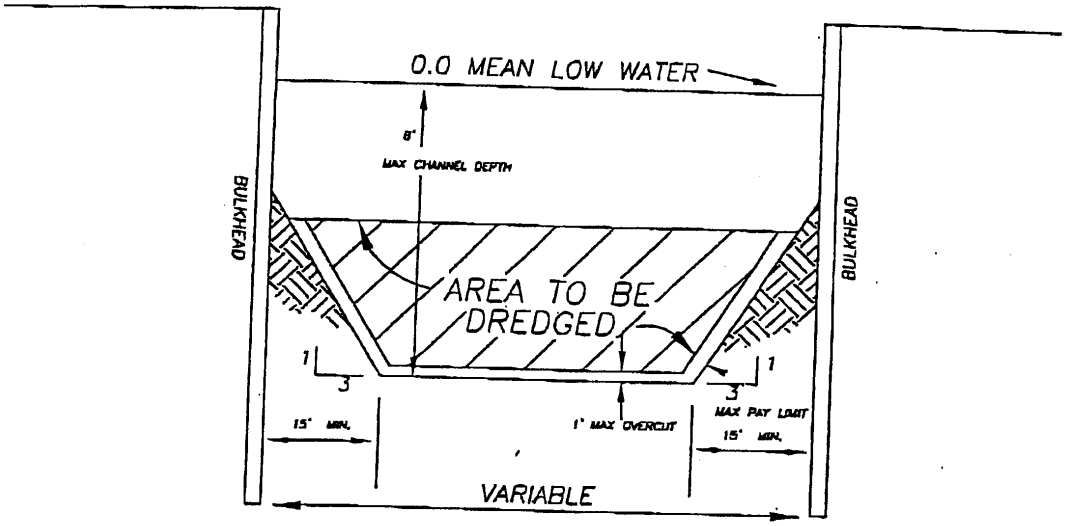


LOCATION MAP
N.Y. QUADRANGLE 1154

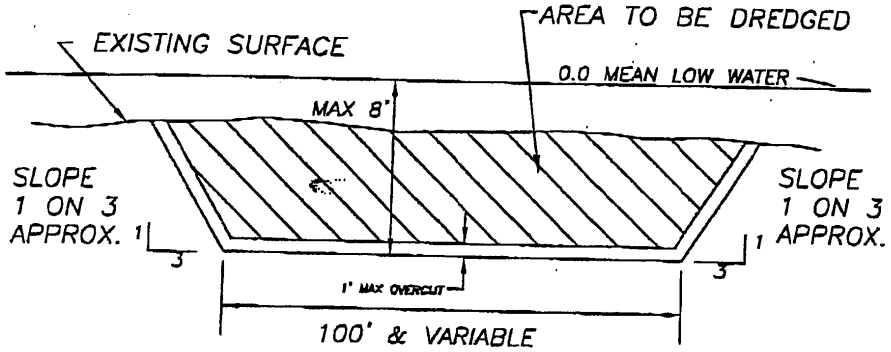
APPLICATION BY COUNTY OF SUFFOLK
DEPARTMENT OF PUBLIC WORKS
CHARLES J. BARTHA, P.E. COMMISSIONER

The datum used on this project is Mean Low Water, elevation 0.00 ft.

MAINTENANCE DREDGING
AT
FIRE ISLAND PINES
TOWN OF BROOKHAVEN
SUFFOLK COUNTY, NEW YORK
DATE: FEB. 02 SHEET 1 OF 4



TYPICAL CHANNEL SECTION
BULKHEADED AREA
NOT TO SCALE

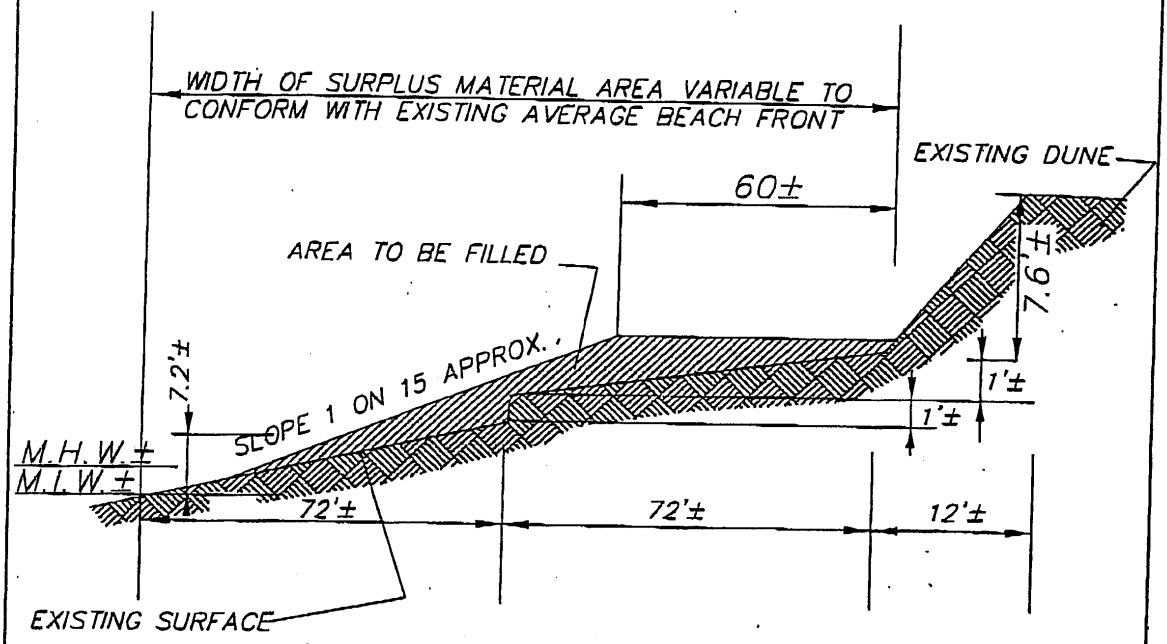


TYPICAL CHANNEL SECTION
NOT TO SCALE

APPLICATION BY COUNTY OF SUFFOLK
DEPARTMENT OF PUBLIC WORKS
CHARLES J. BARTHA, P.E. COMMISSIONER

The datum used on this project is Mean Low Water, elevation 0.00 ft.

MAINTENANCE DREDGING
AT
FIRE ISLAND PINES
TOWN OF BROOKHAVEN
SUFFOLK COUNTY, NEW YORK
DATE: FEB. 02 SHEET 3 OF 4



SURPLUS MATERIAL AREA – ATLANTIC OCEAN
BEACH NOURISHMENT
TYPICAL SECTION

NOT TO SCALE

APPLICATION BY COUNTY OF SUFFOLK
DEPARTMENT OF PUBLIC WORKS
CHARLES J. BARTHA, P.E. COMMISSIONER

The datum used on this project is Mean Low Water, elevation 0.00 ft.

MAINTENANCE DREDGING
AT
FIRE ISLAND PINES
TOWN OF BROOKHAVEN
SUFFOLK COUNTY, NEW YORK
DATE: FEB. 02 SHEET 4 OF 4

STATE OF NEW YORK
DEPARTMENT OF STATE
41 STATE STREET
ALBANY, NY 12231-0001

GEORGE E. PATAKI
GOVERNOR

RANDY A. DANIELS
SECRETARY OF STATE

March 27, 2002

Mr. William S. Shannon
County of Suffolk
Department of Public Works
335 Yaphank Avenue
Yaphank, New York 11980

Re: F-2002-0187
U.S. Army Corps of Engineers/New York District
Application #98-0751-L6
Suffolk County Department of Public Works - Maintenance Dredging - Fire Island Pines
Town of Brookhaven, Suffolk County

General Concurrence

Dear Mr. Shannon:

The Department of State received your Federal Consistency Assessment Form, consistency certification, and supporting information for this proposal on March 1, 2002.

The Department of State has determined that this proposal meets the Department's general consistency concurrence criteria. Therefore, further review of the proposed activity by the Department of State, and the Department's concurrence with an individual consistency certification for it, are not necessary.

When communicating with us regarding this matter, please contact Vance A. Barr at (518) 402-3399 and refer to our file #F-2002-0187.

Sincerely,

Steven C. Resler
Supervisor of Consistency Review and Analysis
New York Coastal Management Program

cc: COE/New York District - Marc Helman
NYS DEC Region I - John Pavacic

NEW YORK STATE DEPARTMENT OF STATE
COASTAL MANAGEMENT PROGRAM

Federal Consistency Assessment Form

An applicant, seeking a permit, license, waiver, certification or similar type of approval from a federal agency which is subject to the New York State Coastal Management Program (CMP, shall complete this assessment form for any proposed activity that will occur within and/or directly affect the State's Coastal Area. This form is intended to assist an applicant in certifying that the proposed activity is consistent with New York State's CMP as required by U.S. Department of Commerce regulations (15 CFR 930.57). It should be completed at the time when the federal application is prepared. The Department of State will use the completed form and accompanying information in its review of the applicant's certification of consistency.

A. APPLICANT

1. Name: Suffolk County Department of Public Works
(please print)

2. Address: 335 Yaphank Ave., Yaphank, N.Y. 11980

3. Telephone: Area Code (631) 852-4002

B. PROPOSED ACTIVITY

1. Brief description of activity: Hydraulically dredge an existing 100' & variable width navigation channel to -8 & place resultant material on Atlantic Ocean beach as nourishment

2. Purpose of activity: Safe navigation

3. Location of activity:

Suffolk	Fire Island Pines	Beach Walk & Fire Island Blvd
County	City, Town or Village	Street or Site Description

4. Type of federal permit/license required: U.S. Army Corps of Engineers

5. Federal application number, if known:

6. If a state permit/license was issued or is required for the proposed activity, identify the state agency and provide the application or permit number, in known: N.Y.S.D.E.C.

C. COASTAL ASSESSMENT Check either "YES" or "NO" for each of the following questions. The numbers following each question refer to the policies described in the CMP document (see footnote on page 2) which may be affected by the proposed activity.

	YES	NO
1. Will the proposed activity result in any of the following:		
a. Large physical change to a site within the coastal area which will require the preparation of an environmental impact statement? (11,22,25,32,37,38,41,43)		X
b. Physical alteration of more than two acres of land along the shoreline, land under water or coastal waters? (2,11,12,20,26,35,44)	X	
c. Revitalization/redevelopment of a deteriorated or underutilized waterfront site? (1)		X
d. Reduction of existing or potential public access to or along coastal waters? (19,20)		X
e. Adverse affect upon the commercial or recreational use of coastal fish resources? (9,10)		X
f. Siting of a facility essential to the exploration, development and production of energy recourses in coastal waters or on the outer continental shelf? (29)		X
g. Siting of a facility essential to the generation or transmission of energy? (27)		X
h. Mining, excavation, or dredging activities, or the placement of dredged or fill material in coastal waters? (15, 35)	X	
i. Discharge of toxics, hazardous substances or other pollutants into coastal waters? (8, 15, 35)		X
j. Draining of stormwater runoff or sewer overflows into coastal waters? (33)		X
k. Transport, storage, treatment, or disposal of solid wastes or solid materials? (36, 39)		X
l. Adverse affect upon land or water uses within the states small harbors? (4)		X
2. Will the proposed activity affect or be located in, on, or adjacent to any of the following:		
a. State designated freshwater or tidal wetland? (44)	X	
b. Federally designated flood and/or state designated erosion hazard area? (11, 12, 17,)		X
c. State designated significant fish and/or wildlife habitat? (7)		X
d. State designated significant scenic resource or area? (24)		X
e. State designated important agricultural lands? (26)		X
f. Beach, dune or barrier island? (12)	X	
g. Major ports of Albany, Buffalo, Ogdensburg, Oswego or New York? (3)		X
h. State, county, or local park? (19,20)		X
i. Historic resource listed on the National or State Register of Historic Places? (23)		X

3. Will the proposed activity require any of the following:	YES	NO
a. Waterfront site? (2,21,22)	—	X
b. Provision of a new public services or infrastructure in undeveloped or sparsely populated sections of the coastal area? (5)	—	X
c. Construction or reconstruction of a flood or erosion control structure? (13,14, 16)	—	X
d. State water quality permit or certification? (30, 38, 40)	—	X
e. State air quality permit or certification? (41, 43)	X	—
4. Will the proposed activity occur within and/or affect an area covered by a state approved local waterfront revitalization program? (See policies in local program document)	—	X

D. ADDITIONAL STEPS

1. If all of the question in Section C are answered "NO", then the applicant or agency shall complete Section E and submit the document required by Section F.

2. If any of the questions in Section C are answered "YES", then the applicant or agent is advised to consult the CMP, or where appropriate, the local waterfront revitalization program document. The proposed activity must be analyzed in more detail with respect to the applicable state or local coastal policies. In the space provided below or on a separate page(s), the applicant or agent shall: (a) identify, by their policy numbers, which coastal policies are affected by the activity, (b) briefly assess the effects of the activity upon the policy; and, © state how the activity is consistent with each policy. Following the completion of this written assessment, the applicant or agency shall complete Section E and submit the documentation required by Section F.

E. CERTIFICATION

The applicant or agency must certify that the proposed activity is consistent with the State's CMP or the approved local waterfront revitalization program, as appropriate. If this certification cannot be made, the proposed activity shall not be undertaken. If this certification can be made, complete this section.

"The proposed activity complies with New York State's approved Coastal Management Program, or with the applicable approved local waterfront revitalization program, and will be conducted in a manner consistent with such program."

Applicants/Agent's Name William S. Shannon, P.E., Chief Engineer, Suffolk County Dept. of Public Works

Address: 335 Yaphank Ave., Yaphank, N.Y. 11980

Telephone: Area Code (631) 852-4002

Applicant/Agent's Signature: [signature] Date: 2/20/02

F. SUBMISSION REQUIREMENTS

1. The applicant or agent shall submit the following documents to the New York State Department of State, Division of Coastal Resources, 41 State Street - 8th floor, Albany, New York 12231.

   a. Original signed form.
   b. Copy of the completed federal agency application.
   c. Other available information which would support the certification of consistency.

2. The applicant or agent shall also submit a copy of this completed form along with his/her application to the federal agency.

3. If there are any questions regarding the submission of this form, contact the Department of State at (518) 474-6000.

This project is to dredge the existing channel at Fire Island Pines. This channel services existing an harbor with public dockage run by the Fire Island Pines as well as some private areas. The dredging of this project will encourage water related recreational activities in the bay, also by facilitating access to the Atlantic Ocean. Besides private boating the harbor is also used by the passenger ferry operator and a freight service that also hauls the garbage off the barrier island. A part of the proposed project is in the Great South Bay significant coastal fish and wildlife habitat. The dredging outside the harbor will be progressed inside a silt containment boom between 15 September and 15 May as recommended by N.Y.S.D.O.S. Because the work will be inside the boomed area and not out in the significant habitat proper and will therefore, have no impact on the habitat. This project will not dredge in or place material on vegetated wetlands. The dredge surplus material is compatible and will be placed as nourishment on the adjacent Atlantic Ocean beaches to the East and West.

For the above reasons this project affects and is compliant with the following policies: Policy #2, Policy #12, Policy #15, Policy #20, Policy #35, Policy #38& Policy #44.

*Those state and local documents are available for inspection at the offices of many federal agencies, Department of Environmental Conservation and Department of State regional offices, and the appropriate regional and county planning agencies. Local program documents are also available for inspection at the offices of the appropriate local government.

TONY'S BARGE SERVICE, INC.
61 River Road
Sayville, New York 11782
(631) 589-2130
(631) 589-2265 Fax

RECEIVED
OCT 24 2002
2155.1

RECEIVED
OCT 18 2002
DEPT OF PUBLIC WORKS
CHIEF ENGINEER'S OFFICE

October 16, 2002

William Shannon
Superintendent of Public Works
335 Yaphank Avenue
Yaphank, New York 11980

Re: Dredging the Fire Island Pines Channel

Dear Mr. Shannon,

Within the last two weeks the harbor entrance is becoming more problematic to navigate. There is no room for error at the harbor opening. Even if we are in the channel on either side by 10 to 15 feet we are aground at all times.

Please expedite this project so that we can properly serve the community without damaging our running gear.

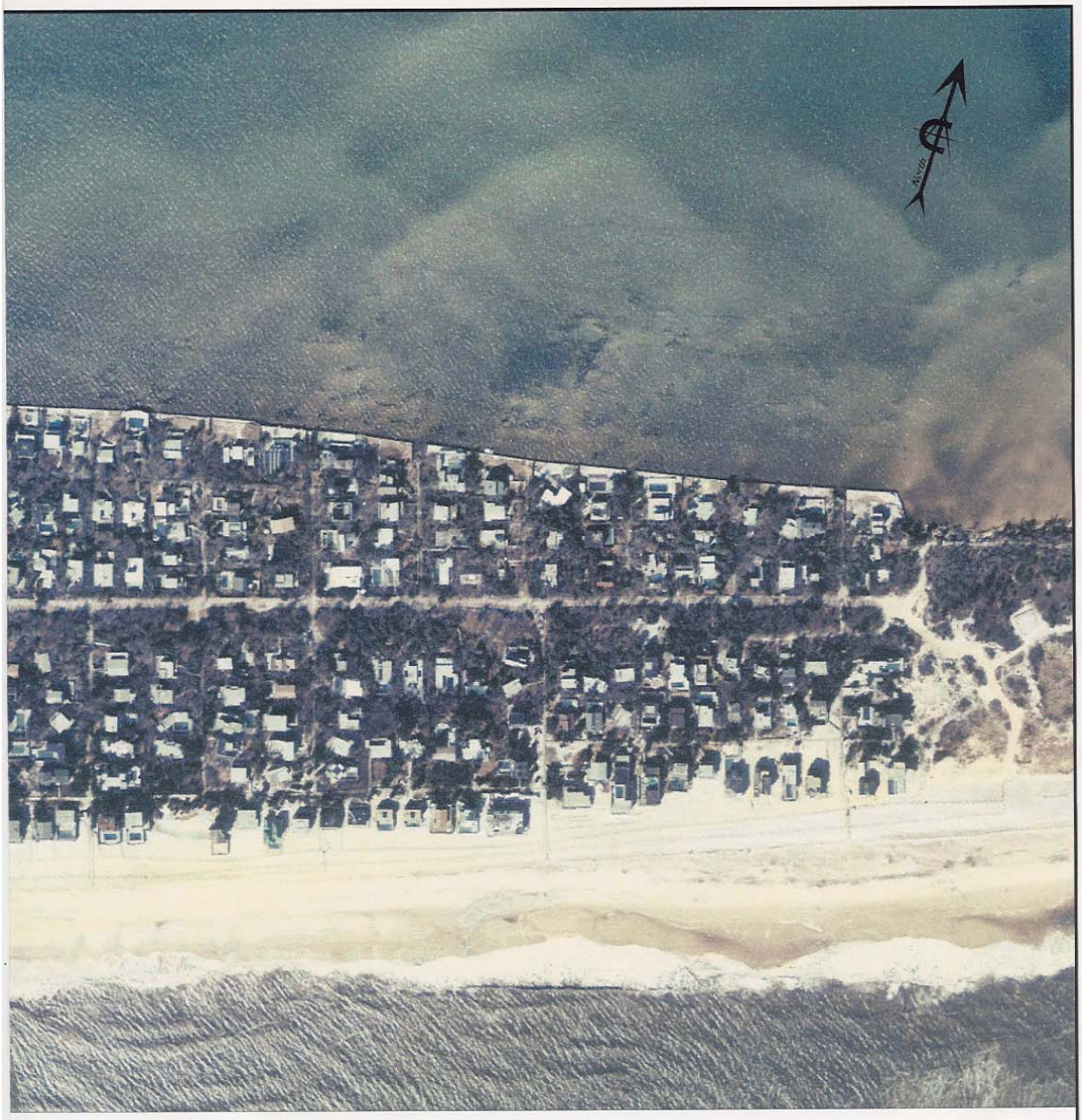
Very truly yours,

Thomas J. Esposito
Vice President

TJE*sd
cc: Steve Levy, Legislator
Paul Roth, Commissioner, Town of Brookhaven
Alan Brockman, FIPPOA
Ronald McKenna, FIPPOA

Approx. Scale 1" = 200'
Photograph taken Spring 1999

PINES HARBOR AND SURROUNDING AREA OF FIRE ISLAND PINES

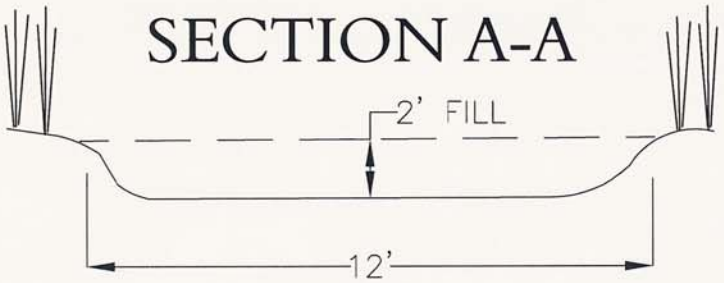


FIRE ISLAND PINES
BETWEEN PINES HARBOR TO THE WEST AND
NPS TALISMAN / BARRETT BEACH TO THE EAST


GENERAL AREA NO
ERODED SINCE PH
FIRE ISLAND PINE
CONTI
FIRE IS
A
A
HELICOPTER PAD
B
AREA OF DREDGE
SAND PLACEMENT
B
EXISTIN
MOVIN
DEWAT
BEACH DEWATERING
PLACEMENT AREA
APPRC

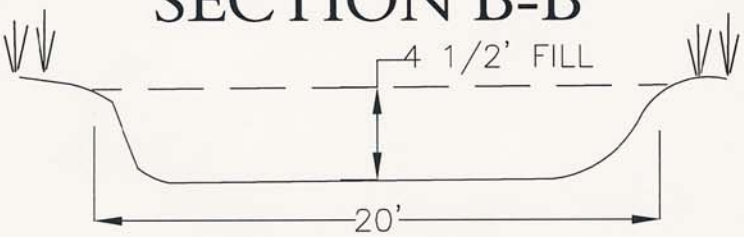

GREAT SOUTH BAY
CONTINUES TO TALISMAN/
BARRETT BEACH
NEW ACCESS
VEHICLE PATHWAY
L.I.P.A. ELECTRICAL
SUBSTATION
PROPOSED PLACEMENT
OF
DREDGED SANDS
FIRE ISLAND PINES
CHANNEL DREDGING

SECTION A-A



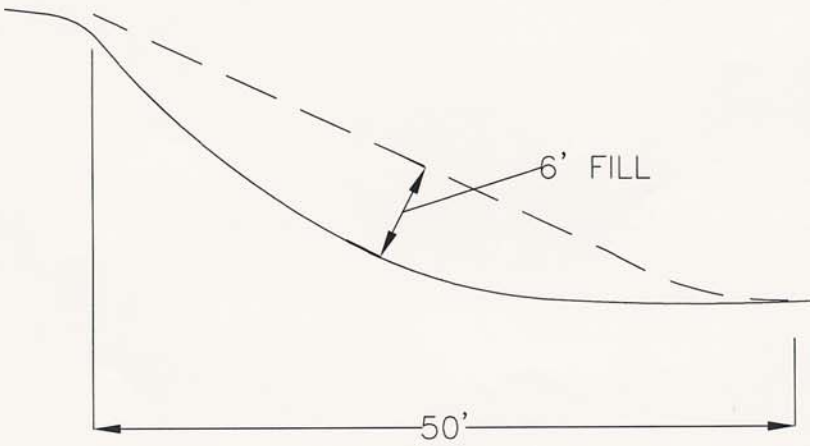
NTS

SECTION B-B



NTS

SECTION C-C



NTS

TYPICAL X-SECTIONS OF FILL AREAS

(REFER TO MAP OF PROPOSED PLACEMENT OF DREDG

Photograph #1 - Looking south into Pines Harbor, from west side, just inside harbor mouth.

Photograph #2 - Looking north towards Great South Bay, from same location as photograph #1.

Photograph #3 - Commercial facilities (including grocery store) on west side of Pines Harbor.

Photograph #4 - First-floor commercial facilities and upper-story lodging on the west side of Pines Harbor.

Photograph #5 - One of the restaurants on the west side of Pines Harbor.

Photograph #6 - Group of small commercial establishments on the west side of Pines Harbor.

Photograph #7 - Post Office and Police Station at the south end of Pines Harbor.

Photograph #8 - Freight dock in the southeast corner of Pines Harbor.

Photograph #9 - Plaza area at south end of Pines Harbor.

Photograph #10 - Passenger ferry arriving at ferry dock in

Photograph #11 - Fire Island Pines Community House.

Photograph #13 - Typical waterfront homes in Fire Island Pines.

Photograph #15 - Transition area between dune and beach on west side of Harbor Walk.

Photograph #16 - Transition area between dune and beach on east side of Harbor Walk.